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TO THE

MISCELLANEOUS DOCUMENTS

OF THE

SENATE OF THE UNITED STATES

FOR THE

FIRST SESSION OF THE FORTY-EIGHTH CONGRESS.

IN THREE VOLUMES.

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48TH CONGRESS, 1st Session. } SENATE. { MIS. DOC. No. 28.

PETITION

OF

AMERICAN ARTISTS IN ROME,

PRAYING

For the repeal of the duty on works of art.

JANUARY 7, 1884.—Referred to the Committee on the Library and ordered to be printed.

To the honorable the Senate and House of Representatives in Congress assembled:

This petition humbly showeth—

That we, the undersigned American artists and students of art now in Rome, learn with regret and apprehension that a duty of 30 per cent. has been imposed by act of Congress upon works of foreign artists imported into our country, and believing, as we do, that any duty is seriously injurious to the interests of art and artists in America, we respectfully submit that the clause levying it should be repealed.

Art is a universal republic to which the citizens and subjects of all nations belong, and a discrimination between the works of foreign and native artists, by imposing duties on the former from which the latter are exempted is in our opinion unjust, illiberal, and impolitic.

First. It is unjust, because art is a free field to which all competitors should be admitted on equal terms.

Second. It is illiberal and unbecoming the free spirit of a great nation. No tax on works of foreign artists has been laid by any nation on this side the Atlantic. On the contrary, such works have been welcomed by all, and free privileges of importation, exhibition, and sale offered to all, without discrimination in favor of native artists.

Third. It is impolitic and injurious to the development of art in our own country. The productions of the masters of the past and the present are to the artist what the great works of literature are to the scholar and student, and the freest and largest opportunities should be given for their introduction into our country, so that our artists may be enabled, by a careful examination and study of them, to enlarge their experience, enrich their minds, and train their powers. A duty like this now imposed is a practical injury to every American artist, and especially to those living in America, who are thereby in great measure deprived of the opportunities and of study most valuable, if not absolutely necessary, for their training as artists, and are forced to leave their own

country to obtain those advantages in foreign schools and foreign museums.

If the motive of Congress in passing such an act was for the supposed protection of American artists, we, the undersigned, protest against such protection, and we have yet to learn that it is desired by the American artists as a class. On the contrary, we would gladly see a free entry and reception accorded to all works of art, by whomsoever executed or to be executed, in the past, the present, and the future.

What our country requires is not protection, which is prohibition, but rather the establishment of a national department for art in a great national museum. While all other nations have founded national museums and schools of art, on which large annual sums are expended by the Government under proper and educated direction, while they give instruction gratuitously and confer prizes for distinction on our artists as well as their own; while they grant pensions for travel and study, and create academies in countries foreign to their own, we, through Congress and as a nation, have done nothing to foster art, have established no department, or even a committee of direction for the intelligent development of its interests, but now, under pretense of protection, lay an almost prohibitory duty upon the entry of foreign works of art into our country. Hitherto what has been done in founding schools and academies and museums has been through private means and by private generosity. The nation, as a nation, has done nothing.

Whether the protective system is favorable or not to the interests of manufactures, art stands upon a different ground, and we protest against its application to art. Each artist is an individual, and his work can be done by himself alone. We cannot, by prohibiting the entry of any work by a foreign artist, supply the same thing by any other artist in our own country. And herein lies that great difference between art and manufactures which make the protective system, as applied to art, an entire mistake.

The only true protection of art and artists in America is to supply the same means and advantages for study at home that is given to all foreign artists in their own countries, and this can be better effected by encouraging the importation of works of art than by laying burdens on it.

If this duty of 30 per cent. be retained, every country will, in its defense and for the protection of its own artists, be driven to levy a tax on the exportation of works of art by American artists executed abroad, and thus instead of receiving protection or advantage, we shall on the contrary be subjected to an injury. While foreign countries open freely their museums and schools to all our artists, a spirit of generosity and fairness should induce our country, in return for such favors, at least to welcome freely the works of their artists and not to lay a tax upon them.

The impression made here in Italy, as well as in all other countries, by this tax on the works of foreign artists has been far from favorable to our country or to us as American artists. In view of the discrimination which has so long existed against foreign artists, and the burden of which is now tripled by this late act of Congress, a proposition was made in the Italian Parliament to retaliate by an equally heavy export duty on all American works of art executed here. This proposition was discussed and rejected as unworthy of Italy, but the comments to which our country was subjected were anything but flattering.

In view of these considerations we, the undersigned, respectfully pray of Congress that it will at the earliest possible opportunity so amend

the act of Congress as to strike out therefrom the duty levied thereby on foreign works of art.

And your petitioners will ever pray, &c.

W. W. STORY, *President.*
DWIGHT BENTON, *Secretary.*

ALBERT BALLIN.
EUGENE BENSON.
GEORGE B. BUTLER, JR.
CAROLINE CARSON.
CHARLES CARYL COLEMAN.
M. EZEKIEL.
AUGUSTA FREEMAN.
J. E. FREEMAN.
RICHARD I. GREENOUGH.
C. C. GRISWOLD.
A. E. HARNISCH.
GEO. HENRY HALL.
WM. STANLEY HASELTINE.
GEORGE VON HOESSLIN.
C. B. IVES.
H. D. IVES.
E. KEYSER.
EDMONIA LEWIS.
ENUMA S. PHINNEY.
P. P. RANDOLPH ROGERS.
ROSA G. ROGERS.
EDGERTON S. ROGERS.
FRANKLIN SIMMONS.
W. A. SHADE.
LUTHER TERRY.
HENRY I. THOUSON.
I. ROLLIN HILTON.
LUELLA M. VARNEY.
ELIHU VEDDER.
A. T. HODGKISS.
A. O. WILLIAMS.
MARY E. WILLIAMS.
JULIAN STORY.
WALDO STORY.

ROME, *December* 1, 1883.

JANUARY 2, 1884.

SIR: Referring to the petition (of American artists residents of Rome) for the free admission of foreign works of art, including sculptures I suppose, allow me, in the interest not of our native sculptors simply, but of all resident sculptors in America, to call your attention to one branch of sculptures which I am probably as competent to speak of as any American, perhaps more so than any other, owing to circumstances which I can readily but will not here explain.

These sculptures are the monumental (cemetery) statues imported, not by artists nor even by art patrons, but by *monument manufacturers*, who so far from doing it in the interest of art, are actuated only by mercenary motives, and divert the commissions from our artists. Without *here* going into any details of the subject I will say that they are bought in the workshops surrounding the quarries of Italy, where the material is sold at one-tenth its market price here, and when wages are at a starvation point are entered here with a 30 per cent. (I believe) ad valorem duty and sold by the manufacturer at a profit of from 50 to 100 per cent. Notwithstanding which enormous profit and the duty he can still sell them at one-tenth of the price a native artist residing here would be compelled to ask for a similar work. I say similar, in one sense, but not in its true meaning for this class of imported statues is of no importance to the art education of our country. Some of them display considerable skill of workmanship, no doubt, but nineteen of every twenty are commonplace, hackneyed, and a hundredfold repeated copies of some model originally of no value and of still less, when often repeated, not even by the artist himself but by some stone-cutter into whose hands the model has fallen. They are not sold in Europe; no one would buy them, they are only refuse, good enough for America as I have heard those who make them say time and again. My wish at this time is to simply call your attention to the facts as above. Something is rotten in our present system. If a man wants a pair of shoes his good sense teaches him to go to a shoemaker and not to a tanner, but in this country if a man wants to erect a monument he goes, nineteen out of twenty times, to a stone manufacturer instead of an artist, because the former can give him a cheaper statue. This is so nowhere else in the world.

In regard to the remedy, older heads may devise better than mine. Briefly I will say that the best I have been able to think of so far would be a duty of a fixed sum per statue (or a sliding duty according to size) large enough to be virtually prohibitory to the above class of importers, but not large enough to prohibit the importation of any real work of art, for real works of sculptor's art cannot be had for nothing, even in Europe. This duty not to apply to any sculpture after a model by a sculptor native or resident of America, for we are frequently obliged to send our

models to Italy to be executed, partly owing to exorbitant prices demanded for material by importers but principally from a lack of workmen here of equal skill to the foreigners. A duty as above would place the building or at least the designing of our country's monuments where it should be, with its artists and not with its stone-cutters and importers.

I am at your service, should you desire any facts or figures.

Very sincerely,

ALEX. DOYLE.

Respectfully forwarded to the Hon. Mr. Sherman, chairman of Committee on Library, for its consideration, in connection with the petition and letter of Mr. Story and others.

GEO. F. EDMUNDS.

JANUARY 4, 1884.

ROME, *Palazzo Barbinni, November* 7, 1883.

DEAR MR. EDMUNDS: At a meeting called by me at my villa, of all the American artists at Rome, to consider what steps should be taken to endeavor to procure a repeal of the duty of 30 per cent. lately laid by Congress on all foreign works of art, there was a very full attendance, and after considerable discussion of the question and a very strong expression of feeling against the imposition of this duty a petition drawn up by me was unanimously adopted, and I was requested to have it drawn out upon parchment and forwarded to Washington, to be presented to Congress.

I now take the liberty to send it to you, begging you to have the kindness to have it so presented and to urge upon Congress the propriety of acceding to the appeal of this petition. I hope I may count on your willingness to lend your aid in endeavoring to procure this result, and I know that to no more efficient and able hands could this matter be intrusted, provided you agree with the wishes and views expressed in this petition.

The action taken by the artists was warmly received here by the Government as well as by all the academies. The petition itself was translated and copied in all the principal papers with strong commendation, and various formal communications were made by the Government and by the academies to me as chairman of the meeting thanking the artists for the steps that they had taken and expressing an earnest hope that their views would be adopted by Congress. The question was also brought forward in the Italian Chambers and discussed; but all action was postponed until Congress should assemble and the result of this petition, and others of a similar kind, should be known, in the hope that this obnoxious duty should be repealed. I think there is little doubt that, unless it is repealed, the Italian Chambers will proceed to retaliatory measures by laying a corresponding duty on export from Italy of all works of art by American artists here resident, so as to put their own artists on the same footing as ours.

A very strong feeling has been aroused, not only here in Italy, but also in France and Germany, by this duty. Every advantage is given freely abroad to all American artists and students of art for study and competition and exhibition on equal terms with the artists of each country—no discrimination is made between them. Their academies and schools are all open to American artists, and prizes are given to them as well as their own artists. Under such circumstances it would seem but just that a reciprocation should be made on our part, and that no injurious discrimination should be made against the works of foreign artists.

If this duty be laid for the proposed protection of American artists it fails of its purpose. The artists do not desire it; on the contrary, they are unanimously (as far as I know) opposed to it. If it be for revenue the country does not need it. If it be for the advantage of the public it is an utterly mistaken policy. There is nobody who can be benefited by laying such a duty. It is for the public interest that all works of art should enter free. They enlarge and educate and refine the people, and the cheaper they are the larger is their distribution and the more general their influence.

Works of art are not like works of manufacture. If the work of any artist, good or bad, be excluded, it enables no artist in our own country to produce the same thing cheaper. Each work is individual. It cannot be repeated nor created by any other person.

Besides this, we are a great, powerful, and rich country; "*noblesse oblige*" is the principle on which we should act. It becomes us to be liberal as we are great and powerful; art is a universal republic, of which all artists are citizens and entitled to equal rights, without special favors to any. This at least is the view that all real artists of whatever country take of it. If there be any so low as to desire that foreign artists should be heavily handicapped in the race they are unworthy of the name of artist. Speaking for all that I know I can honestly say that our desire is that there should be to all a free field and no favor.

These are a few of the considerations which you will pardon me for offering on this question, as they will naturally have occurred to you. I earnestly hope that you will have the good will, as you certainly have the accomplished ability, to present them in a far better form to Congress, and to give the weight of your influence to induce Congress to repeal as soon as possible this obnoxious duty.

Hoping that you will pardon me for the trouble I am giving you, and that you will kindly lend your aid to the object of this petition, I have the honor to be, with the highest consideration,

Yours, most respectfully,

W. W. STORY.

Hon. Mr. Senator EDMUNDS, *Washington.*

P. S.—I shall by the same post forward the petition by registered package.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 29.

IN THE SENATE OF THE UNITED STATES.

JANUARY 8, 1884.—Ordered to be printed.

Mr. VAN WYCK submitted the following

RESOLUTION:

Whereas it is claimed by the New Orleans and Pacific Railroad Company that, as the Attorney-General has decided in favor of said company as to lands claimed by them, and the Secretary of the Interior has felt constrained to act upon and accept said opinion, and that Congress has no further control or authority over said lands or the claim of said company thereto: Therefore,

Resolved, That the Secretary of the Interior be directed to suspend action in issuing certificates or patents for said lands to said corporation until Congress, at this session, shall determine the questions involved in the claims of said corporation.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 30.

IN THE SENATE OF THE UNITED STATES.

JANUARY 8, 1884.—Ordered to be printed.

Mr. VAN WYCK submitted the following

RESOLUTION:

Resolved, That the Committee on the Judiciary be directed to examine and report what legislation, if any, is necessary to restrict the appointment of special assistant attorneys and special agents or detectives in the Department of Justice, and report by bill or otherwise.

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 31.

IN THE SENATE OF THE UNITED STATES.

JANUARY 9, 1884.—Ordered to be printed.

Mr. ANTHONY submitted the following

RESOLUTION:

Resolved, That the Committee on Foreign Relations be instructed to inquire into the expediency of such legislation as shall enable the Executive to protect our interests against those Governments which have prohibited or restrained the importation of healthful meats from the United States.

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. 31, Part 2.

IN THE SENATE OF THE UNITED STATES.

JANUARY 9, 1884.—Submitted.
JANUARY 11, 1884.—Considered and ordered to be printed with proposed amendments.
Omit the part in brackets and insert the parts printed in italics.

Mr. ANTHONY submitted the following

RESOLUTION:

Resolved, That the Committee on Foreign Relations be instructed to inquire into [the expediency of] *and report to the Senate* such legislation as shall enable the Executive to protect our interests against those Governments which have prohibited or restrained the importation of healthful meats from the United States.

AMENDMENT PROPOSED BY MR. VAN WYCK.

At the end of the resolution add:

Except such Governments whose manufactured goods or products were previously restrained or prohibited from free access to our ports.

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. 31, Part 3.

IN THE SENATE OF THE UNITED STATES.

JANUARY 16, 1884.—Ordered to be printed.

Mr. BECK submitted the following as an amendment to Mr. Anthony's resolution on the subject of foreign restrictions on the importation of American meats:

And the committee is further instructed to report what discriminations are made against exports from the United States by the tariff laws of the principal countries of Europe and America, especially France, Germany, Mexico, and Brazil, by reason of commercial or other special treaties or agreements with more favored nations, and to report the causes which led to such discriminations, the efforts, if any, that have been made to remove them, and what legislation, if any, is necessary to place the United States on an equal footing with the most favored nations. This investigation is not, however, to delay the action of the committee on the first branch of this resolution.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 32.

LETTER

FROM

THE SECRETARY OF THE NAVY,

TRANSMITTING

Recommendation and draft of a bill for the relief of the survivors of the exploring steamer Jeannette, and the widows and orphans of those who perished in the retreat from the wreck of that vessel.

JANUARY 11, 1884.—Referred to the Committee on Naval Affairs and ordered to be printed.

NAVY DEPARTMENT,
Washington, January 9, 1884.

SIR: I have the honor to transmit herewith a draft of a bill for the relief of the survivors of the exploring steamer Jeannette, and the widows and children of those who perished in the retreat from the wreck of that vessel in the Arctic seas, and to request that the same may be presented to the Senate.

In recommending this bill, or some similar measure of relief for the survivors of the officers and enlisted men of the Jeannette, and for the widows and children of those who succumbed to the privations and fatigues to which they were subjected in consequence of the loss of that vessel, I desire to state that the provision for the relief of the survivors is not intended as a gratuity but as a reimbursement of the losses sustained by them, and is in accordance with similar action in the cases of the Polaris, the Huron, and other vessels wrecked or lost at sea. Many, if not all the personal effects of both officers and enlisted men, were either lost by the wreck of the Jeannette or were necessarily abandoned by them when compelled to undertake the long and perilous journey by which alone they could hope to save their lives.

In this connection I desire also to call the attention of Congress to the sixth finding of the court of inquiry appointed to investigate the circumstances attending the loss of the Jeannette, concerning the general conduct and merits of each and all the officers and men of the expedition, which is as follows:

There is conclusive evidence that aside from trivial difficulties, such as occur on shipboard even under the most favorable circumstances, and which had no influence in bringing about the disasters of the expedition and no pernicious effect upon its general conduct, every officer and man so conducted himself that the court finds no occasion to impute censure to any member of the party.

In view, then, of the long and dreary monotony of the cruise, the labors and privations encountered, the disappointment consequent upon a want of important results, and the uncertainty of their fate (and apart from a natural desire to tread lightly on the graves of the dead), the general conduct of the *personnel* of the expedition seems to have been a marvel of cheerfulness, good-fellowship, and mutual forbearance, while

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 33.

LETTER

OF

HON. WM. P. KELLOGG,

IN DENIAL OF

Certain charges contained in the letter of J. J. Newell, transmitted by the Secretary of the Interior in answer to a resolution of December 13, 1883, in relation to the transfer of the Texas and Pacific land grant.

JANUARY 17, 1884.—Referred to the Committee on Public Lands and ordered to be printed.

HOUSE OF REPRESENTATIVES,
Washington, D. C., January 15, 1884.

SIR: Since my return to the city, after an absence during the recess, my attention has been called to Senate Ex. Doc. No. 27, of the present session, being an answer to a resolution of the Senate of date December 13, 1883, calling for copies of all papers on file in the Department of the Interior relating to the transfer by the Texas and Pacific Railroad Company of its land grant to the Southern Pacific Railroad Companies. I find in the document referred to, a communication dated May 12, 1883, signed J. J. Newell, in which it is charged, among other things, that money was used to secure the passage by the Senate of the act known as "An act to incorporate the Texas and Pacific Railroad Company," approved March 3, 1871, and charging that several gentlemen, then Senators, myself included, entered into an arrangement to secure the passage of said act by improper means, and that money was actually paid to several gentlemen, then Senators, myself among the number, to secure the passage of said act. I pronounce every statement and allegation in the communication signed J. J. Newell, which in any manner imputes to me any improper or questionable act whatever in connection with the passage of the Texas and Pacific act, as a vile and malicious fabrication, utterly false in general and detail; and I believe it to be equally false as to every statement contained therein in any wise reflecting upon the character of the other gentlemen named. I assert my belief that there is not a single material allegation contained in the statement signed J. J. Newell, reflecting upon the character of the gentlemen named therein, which can be sustained by any reputable proof whatever.

To allow this matter to rest thus without question is to leave in the records of the Senate uncontradicted a most vile and deliberate aspersion upon the character of a number of gentlemen, several of whom were Senators at the time and some of whom have since died.

I submit that this would be a grievous wrong, both to the living and to the dead. I therefore respectfully request that this communication,

signed J. J. Newell, be referred to some committee of the Senate, with instructions to institute an investigation, both thorough and complete, to the end that the truth or falsity of the statements contained therein may be known.

Very respectfully,

WM. P. KELLOGG.

Hon. GEORGE F. EDMUNDS,
President of the United States Senate.

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 34.

MEMORIAL

OF

THE CHAMBER OF COMMERCE OF ASTORIA, OREGON,

IN FAVOR OF

An appropriation for improving the mouth of the Columbia River.

JANUARY 17, 1884.—Referred to the Committee on Commerce and ordered to be printed.

To the honorable the Congress of the United States:

Your memorialists, the Astoria Chamber of Commerce, of the city of Astoria, State of Oregon, respectfully petition your honorable body to make an appropriation of $500,000 to improve the entrance to the Columbia River, in accordance with the recommendations and plans embodied in the report of a special committee of the Board of Engineers of the United States.

In urging that this work may be undertaken as speedily as possible, this chamber calls your attention to the following important facts:

The commerce of the Columbia River is now increasing at a ratio of 25 per cent. annually, with a probability of a still greater increase. During the year 1883 the entrances and clearances at the custom-house at Astoria were as follows: Deep-water vessels, under register in foreign trade, arriving (both foreign and United States vessels), 110; tonnage, 118,076. Departing, 81; tonnage, 82,608. Entrances, coastwise, 339; tonnage, 488,594. Clearances, 318; tonnage, 463,716.

Value of imports brought over Columbia River bar in 1883: Domestic, $27,668,787; foreign, $1,177,404.

Value of exports for same year: Domestic, $6,212,512; foreign, $6,178,869. (Lumber exports not included.)

Your memorialists respectfully submit to your honorable body that in view of its present as well as future commercial importance, the improvement of the Columbia River bar is the most necessary work contemplated in the Northwest.

We would especially call attention to the fact that the present state of the Columbia River bar is detrimental to the interests of American ship-owners. Nearly all foreign vessels are iron, and American, wood. To be profitable to the producer, the grain of this coast, in view of the length of the voyage, must be carried to a foreign market in large vessels. No vessel can now cross the Columbia River bar, under the most favorable circumstances, drawing over 22 feet. The large American vessel, drawing 23 to 26 feet, cannot, therefore, load to her full capacity, but is compelled to clear with no more freight than the British vessel drawing from 20 to 22 feet. Shippers are obliged, therefore, to employ foreign vessels to carry our produce to Europe.

Of the 81 vessels clearing from this port, foreign, with grain, in 1883, only 12 were American bottoms. Most of the vessels leave outward bound in the winter months, when the bar is roughest, and frequently have to wait for weeks for a smooth bar. This delay is solely due to want of proper depth. No lightering can be done here outside the bar, as is done in some other ports.

Your memorialists deem the improvement of the mouth of the Columbia to be a work of national importance, not simply because during the year just ended 838 vessels, with cargoes aggregating over forty-one millions of dollars (to say nothing of the value of the vessels), have crossed and recrossed its bar, but also on account of the vast area of tillable lands that surround the headwaters of its numerous tributaries, which are as yet almost unsettled, but which will be occupied in the near future.

A sufficient depth of water is wanted and can be obtained on the bar to allow vessels drawing 26 feet to cross without delay, in order to meet the requirements of commerce.

In conclusion, your memorialists respectfully ask that this be made a special appropriation, as the appropriation made for the improvement of the Columbia and Willamette Rivers is not construed by the United States Engineers to include or apply to the mouth of the river.

Passed the chamber December 29, 1883.

Attest:

[SEAL.] E. C. HOLDEN, *Secretary.*

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48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 35.

LETTER

FROM

HON. F. E. SHOBER, LATE ACTING SECRETARY OF THE SENATE,

TRANSMITTING

Report of the receipts and expenditures of his office from July 1, 1883, *to December* 18, 1883; *also, a statement of all property in his possession belonging to the United States on said* 18*th day of December*, 1883.

JANUARY 18, 1884.—Ordered to lie on the table and be printed.

OFFICE OF SECRETARY OF THE UNITED STATES SENATE,
Washington, January 19, 1884.

SIR: In obedience to the requirements of sections 60, 61, 63, and 72 of the Revised Statutes of the United States, I have the honor to submit a full and complete statement of the receipts and expenditures of the Senate, showing in detail the items of expense under the proper appropriations, the aggregate thereof, and exhibiting the exact condition of all public moneys received, paid out, and remaining in my possession from July 1, 1883, to December 18, 1883. I submit also a full and complete account of all property belonging to the United States in my possession on the 18th ultimo.

Very respectfully, your obedient servant,

F. E. SHOBER,
Late Acting Secretary.

Hon. GEO. F. EDMUNDS,
President of the Senate pro tempore.

COMPENSATION AND MILEAGE OF SENATORS FOR FISCAL YEAR ENDING JULY 3, 1893.

By amount paid Senators		[illegible]
By amount covered into Treasury		1,627 94
To balance on hand July 4, 1893	$19,686 92	
	19,686 92	19,686 92

COMPENSATION AND MILEAGE OF SENATORS FROM JULY 4 TO DECEMBER 3, 1893.

By amount paid Senators		$153,313 80
By amount covered into Treasury		46,686 20
To amount drawn	200,000 00	
	200,000 00	200,000 00

SALARIES OF OFFICERS, CLERKS, MESSENGERS, AND OTHERS RECEIVING AN ANNUAL SALARY IN THE SERVICE OF THE SENATE JULY 1, 1893, TO NOVEMBER 30, 1893.

Date.	Page of pamphlet.	To whom paid and for what object.	Amount.	Total.
		OFFICERS, CLERKS, AND EMPLOYÉS.		
1893, Sept. 30	1	F. E. Shober *et al.*, for the quarter ending September 30, 1893:		
		F. E. Shober, Acting Secretary (including compensation as disbursing officer and for hire of horses and wagons)	$1,524 00	
		H. H. Giffry, principal clerk	648 00	
		H. K. Peyton, principal executive clerk	648 00	
		R. B. Nixon, financial clerk	750 00	
		H. H. McDonald, minute and journal clerk	648 00	
		C. C. Simpson, enrolling clerk	648 00	
		P. J. Pierce, librarian	555 00	
		A. W. Church, assistant librarian	360 00	
		[illegible] H. Shankland, clerk	555 00	
		[illegible] Chalmers, clerk	555 00	
		[illegible] B. Edmunds, clerk	555 00	
		Paul Jones, clerk	555 00	
		[illegible] K. Harris, clerk	555 00	
		[illegible] F. Salyer, clerk	555 00	
		[illegible] C. Morrow, clerk	525 00	
		[illegible] Williams, clerk	525 00	
		[illegible] H. Curry, clerk	525 00	
		[illegible] R. Ullman, clerk	525 00	
		[illegible] S. Dunham, clerk	525 00	
		[illegible] N. Richards, keeper of the stationery	525 00	
		[illegible] C. Morgan, assistant keeper of the stationery	450 00	
		[illegible] S. Parker, assistant in stationery room	250 00	
		[illegible] A. Hills, messenger	360 00	
		[illegible] Mitchell, messenger	360 00	
		[illegible] R. Hickman, laborer	180 00	
		[illegible] Lucas, laborer	180 00	
		[illegible] F. Murray, laborer	180 00	
		[illegible] C. W. Shaw, page per day	240 00	
		[illegible] P. Young, clerk of printing records	555 00	
		Rev. [illegible] J. Bulkley, chaplain	225 00	
		[illegible] W. Secretary, secretary to the Vice-President	325 00	
		[illegible] Reed, messenger to the Vice-President	360 00	
		[illegible] F. Clarke, clerk to Committee on Appropriations	625 00	
		[illegible] S. Morgan, assistant clerk to Committee on Appropriations	400 00	
		[illegible] Christian, messenger to Committee on Appropriations	360 00	
		[illegible] Purcell, clerk and stenographer to Committee on Finance	625 00	
		[illegible] W. Wilson, messenger to Committee on Finance	360 00	
		[illegible] Crook, clerk to Committee on Claims, July 1 to 4, inclusive	36 13	
		[illegible] H. Bond, messenger to Committee on Claims	360 00	
		[illegible] W. Williams, clerk to Committee on Commerce, July 1 to September 30	365 37	
		[illegible] F. Robinson, clerk to Committee on the Judiciary	555 00	
		[illegible] Smith, messenger to Committee on the Judiciary	360 00	
		[illegible] Ryan, clerk to Committee on Private Land Claims	555 00	

FOR COMPENSATION OF OFFICERS, CLERKS, MESSENGERS, &c.—Continued.

ate.	No. of voucher.	To whom paid and for what object.	Amount.	Total.
		OFFICERS, CLERKS, AND EMPLOYÉS—Continued.		
83.				
30	1	F. E. Shober *et al.*, for the quarter ending September 30, 1883—Continued.		
		J. R. Potter, clerk to Committee on Pensions	$555 00	
		E. D. York, assistant clerk to Committee on Pensions	360 00	
		G. D. Mitchell, messenger to Committee on Pensions	360 00	
		W. R. Taylor, clerk to Committee on Military Affairs	555 00	
		G. D. Fox, clerk to Committee on Post-Offices and Post-Roads	555 00	
		C. S. Draper, messenger to Committee on Post-Offices and Post-Roads	360 00	
		T. J. White, clerk to Committee on District of Columbia	555 00	
		J. Baumer, messenger to Committee on District of Columbia	360 00	
		E. Baltsley, clerk to Joint Committee on Library	555 00	
		P. Pulsifer, clerk to Committee on Census	555 00	
		H. J. Gensler, clerk to Committee on Naval Affairs	555 00	
		E. J. Babcock, clerk to Committee on Foreign Relations	555 00	
		B. F. Flennikeu, clerk to Committee on Public Lands	555 00	
		E. J. Gorham, clerk to Committee to Audit and Control the Contingent Expenses	555 00	
		J. W. Allen, messenger to Committee on Engrossed Bills	360 00	
		G. A. Clarke, messenger to Official Reporters	360 00	
		W. L. Ives, telegraph operator	300 00	
		C. Cunningham, telephone operator	180 00	
		R. J. Bright, Sergeant-at-Arms	1,080 00	
		G. B. McSchadman, clerk to Sergeant-at-Arms	500 00	
		Isaac Bassett, assistant doorkeeper	648 00	
		J. I. Christie, acting assistant doorkeeper	648 00	
		W. P McMichael, postmaster	562 50	
		J. R. Sneed, assistant postmaster and mail-carrier	522 00	
		B. J. Thorn, mail-carrier	300 00	
		G. U. Bingham, mail-carrier	300 00	
		J. W. Tebbs, mail-carrier	300 00	
		J. Trumble, mail-carrier	300 00	
		H. C. Parker, mail-carrier	300 00	
		G. H. Boyd, riding-page	230 00	
		T. J. Brooke, riding-page	230 00	
		T. B. Bailey, riding-page	230 00	
		A. H. Stewart, riding-page	230 00	
		A. Smith, superintendent of document-room	540 00	
		W. D. Blackford, first assistant in document-room	360 00	
		S. K. Hannegan, second assistant in document-room	360 00	
		A. W. Cochran, clerk in document-room	360 00	
		W. F. McDaniel, page in document-room	180 00	
		L. Dalton, superintendent of folding-room	540 00	
		J. S. Hickcox, assistant in folding-room	300 00	
		J. P. Ringgold, foreman in folding-room	300 00	
		A. Dodge, folder	276 00	
		J. R. Keech, folder	276 00	
		W. A. Horback, folder	276 00	
		A. P. Barker, folder	276 00	
		W. Lansdale, folder	276 00	
		R. E. Henning, folder	276 00	
		G. F. Cross, messenger, acting assistant doorkeeper	450 00	
		C. M. Wilcox, messenger, acting assistant doorkeeper	450 00	
		S. A. Jonas, messenger, acting assistant doorkeeper	450 00	
		J. G. Merritt, messenger	360 00	
		J. J. G. Ball, messenger	360 00	
		J. Laws, messenger	360 00	
		G. T. Howard, messenger	360 00	
		W. H. May, messenger	300 00	
		W. Griffin, messenger	360 00	
		S. B. Ryan, messenger	360 00	
		J. D. Corse, messenger	360 00	
		Ben. Prescott, messenger	360 00	
		H. T. Strawbridge, messenger	360 00	
		A. J. Dorn, messenger	360 00	
		J. F. Edwards, messenger	360 00	
		P. Pew, messenger	360 00	
		D. H. Shields, messenger	360 00	
		H. W. Wall, messenger	360 00	
		D. Kimball, messenger	360 00	
		G. W. Carr, messenger	360 00	
		J. R. Randall, messenger	360 00	
		W. E. Dougherty, messenger	360 00	
		A. A. Johnson, messenger	360 00	
		A. Barnes, messenger	360 00	

FOR COMPENSATION OF OFFICERS, CLERKS, MESSENGERS, &c.—Continued.

Date.	No. of voucher.	To whom paid and for what object.	Amount.	Total.
		OFFICERS, CLERKS, AND EMPLOYÉS—Continued.		
1863.				
Sept. 30	1	F. E. Shober *et al.*, for the quarter ending September 30, 1863—Continued.		
		H. C. Homan, messenger	$300 00	
		G. B. Lake, messenger	300 00	
		S. V. Noyes, messenger	300 00	
		J. Landera, messenger in charge of storeroom	600 00	
		A. Hielyman, laborer in charge of private passage	210 00	
		L. V. Jackson, laborer in charge of ladies' room	120 00	
		T. A. Jones, chief engineer	540 00	
		R. C. Stubbs, assistant engineer	300 00	
		G. W. N. Castle, assistant engineer	300 00	
		W. H. Prescott, assistant engineer	300 00	
		A. L. Singleton, fireman	272 75	
		A. Langley, fireman	272 75	
		J. Montgomery, laborer in engineer's department	120 00	
		S. Underwood, laborer in engineer's department	120 00	
		G. Selby, laborer in engineer's department	120 00	
		J. Hickham, laborer (skilled)	250 00	
		T. J. Burke, laborer (skilled)	250 00	
		J. N. Haddock, laborer (skilled)	250 00	
		R. L. Reane, laborer (skilled)	250 00	
		H. G. Healy, laborer (skilled)	250 00	
		R. A. Kennell, laborer (skilled)	250 00	
		D. B. Moore, laborer (skilled)	250 00	
		F. P. Holmes, laborer (skilled)	250 00	
		J. Brown, laborer (annual)	180 00	
		E. Frier, laborer (annual)	180 00	
		S. Johnson, laborer (annual)	180 00	
		C. P. Phillips, laborer (annual)	180 00	
		J. Dudley, laborer (annual)	180 00	
		F. E. Dodson, laborer (annual)	180 00	
		B. Mitchell, laborer (annual)	180 00	
		J. H. Prender, laborer (annual)	180 00	
		B. Hudnell, laborer (annual)	180 00	
		T. Wood, laborer (annual)	180 00	
		B. Stewart, laborer (annual)	180 00	
		H. G. Williams, laborer (annual)	180 00	
		F. M. Eastman, clerk to Committee on Claims (July 5 to September 30)	530 88	
	2	F. E. Shober *et al.*, for the months of October and November, 1863:		$58, 12
Nov. 30		F. E. Shober, acting Secretary (including compensation as disbursing officer and for hire of horses and wagons)	1, 010 50	
		H. H. Gilfry, principal clerk	429 70	
		H. E. Peyton, principal executive clerk	429 70	
		R. B. Nixon, financial clerk	497 30	
		H. B. McDonald, minute and Journal clerk	429 70	
		C. C. Sympson, enrolling clerk	429 70	
		P. J. Pierce, librarian	368 00	
		A. W. Church, assistant librarian	238 70	
		M. R. Shankland, clerk	368 00	
		L. Chalmers, clerk	368 00	
		R. B. Edmondson, clerk	368 00	
		Paul Jones, clerk	368 00	
		R. K. Harris, clerk	368 00	
		J. P. Salyer, clerk	368 00	
		C. C. Morrow, clerk	348 10	
		J. Williams, clerk	348 10	
		R. H. Lurty, clerk	348 10	
		W. S. Gilman, clerk	348 10	
		J. S. Dunham, clerk	348 10	
		C. N. Richards, keeper of the stationery	348 50	
		W. C. George, assistant keeper of the stationery	298 40	
		J. E. Tucker, assistant in stationery room	165 80	
		R. A. Hills, messenger	238 70	
		J. McGuckian, messenger	238 70	
		T. S. Hickman, laborer	119 40	
		C. F. Murray, laborer	119 40	
		W. Lucas, laborer	119 40	
		C. W. Sloan, page	152 50	
		R. P. Powe, clerk of printing records	368 00	
		Rev. J. J. Bullock, chaplain	149 20	
		G. W. Seaver, secretary to the Vice-President	348 50	
		H. Head, messenger to Vice-President	238 70	
		T. P. Cleaves, clerk to Committee on Appropriations	414 40	
		J. S. Morgan, assistant clerk to Committee on Appropriations	335 20	

FOR COMPENSATION OF OFFICERS, CLERKS, MESSENGERS, &c.—Continued.

Date.	No. of voucher.	To whom paid and for what object.	Amount.	Total.
		OFFICERS, CLERKS, AND EMPLOYÉS—Continued.		
1883.				
Nov. 30	2	F. E. Shober *et al.*, for the months of October and November, 1883—Continued.		
		C. Chritzman, messenger to Committee on Appropriations	$238 70	
		B. Durfee, clerk and stenographer to Committee on Finance	414 40	
		D. W. Wilson, messenger to Committee on Finance	238 70	
		F. M. Eastman, clerk to Committee on Claims	368 00	
		H. H. Rand, messenger to Committee on Claims	238 70	
		A. W. McMillan, clerk to Committee on Commerce		
		G. P. Bradstreet, clerk to Committee on Judiciary	368 00	
		J. T. Gaskin, messenger to Committee on Judiciary	238 70	
		H. L. Bryan, clerk to Committee on Private Land Claims	368 00	
		J. B. Potter, clerk to Committee on Pensions	368 00	
		E. D. York, assistant clerk to Committee on Pensions	238 70	
		G. D. Mitchell, messenger to Committee on Pensions	238 70	
		W. B. Taylor, clerk to Committee on Military Affairs	368 00	
		G. D. Fox, clerk to Committee on Post-Offices and Post-Roads	368 00	
		C. S. Draper, messenger to Committee on Post-Offices and Post-Roads	238 70	
		T. J. White, clerk to Committee on District of Columbia	368 00	
		J. Baumer, messenger to Committee on District of Columbia	238 70	
		E. Baltzley, clerk to Joint Committee on Library	368 00	
		P. Pulsifer, clerk to Committee on Census	368 00	
		H. J. Genaler, clerk to Committee on Naval Affairs	368 00	
		E. J. Babcock, clerk to Committee on Foreign Relations	368 00	
		B. F. Flenniken, clerk to Committee on Public Lands	368 00	
		E. J. Gorham, clerk to Committee to Audit and Control the Contingent Expenses	368 00	
		J. W. Allen, messenger to Committee on Engrossed Bills	238 70	
		G. A. Clarke, messenger to the official reporters (October 1 to November 4)	136 95	
		W. L. Ives, telegraph operator	198 90	
		Robert Cunningham, telephone operator	119 40	
		R. J. Bright, Sergeant-at-Arms	716 10	
		John McKinney, clerk to Sergeant-at-Arms	331 50	
		Isaac Bassett, assistant doorkeeper	429 70	
		J. I. Christie, acting assistant doorkeeper	429 70	
		W. P. McMichael, postmaster	373 00	
		J. R. Sneed, assistant postmaster and mail-carrier	346 10	
		B. T. Thorn, mail carrier	198 90	
		G. U. Bingham, mail carrier	198 90	
		J. W. Tebbs, mail carrier	198 90	
		J. Trumble, mail carrier	198 90	
		H. C. Parker, mail carrier	198 90	
		G. H. Boyd, riding page	152 50	
		T. J. Brooke, riding page	152 50	
		T. B Bailey, riding page	152 50	
		A. H. Stewart, riding page	152 50	
		A. Smith, superintendent of document-room	358 00	
		W. D. Blackford, first assistant in document-room	238 70	
		S. K. Hannegan, second assistant in document-room	238 70	
		A. W. Cochran, clerk in document-room	238 70	
		W. F. McDaniel, page in document-room	119 40	
		L. Dalton, superintendent of folding-room (October 1 to December 5)	387 36	
		J. S. Hickcox, assistant of folding-room (October 1 to December 5)	215 20	
		J. P. Ringgold, foreman in folding-room	198 90	
		A. Dodge, folder	183 00	
		J. R. Keech, folder	183 00	
		W. A. Horbach, folder	183 00	
		A. P. Barker, folder	183 00	
		W. F. Lansdale, folder	183 00	
		R. E. Henning, folder	183 00	
		G. F. Cross, messenger, acting assistant doorkeeper	298 40	
		C. M. Wilcox, messenger, acting assistant doorkeeper	298 40	
		S. A. Jonas, messenger, acting assistant doorkeeper	298 40	
		J. G. Merritt, messenger	238 70	
		J. J. G. Ball, messenger	238 70	
		J. Laws, messenger	238 70	
		G. T. Howard, messenger	238 70	
		W. H. May, messenger	238 70	
		W. Griffis, messenger	238 70	
		S. B. Ryan, messenger	238 70	
		J. D. Corse, messenger	238 70	

For compensation of officers, clerks, messengers, &c.—Continued.

Date.	To whom paid and for what object.	Amount.	Total.
	CONTINGENT CLERKS AND EMPLOYÉS—Continued.		
1894			
Nov. 24	S. P. P. Burns et al., for the months of October and November.		
	Contingent.		
	R. Farrell, messenger	$208 70	
	W. F. Brookbridge, messenger	208 70	
	A. J. Lowe, messenger	208 70	
	J. H. Kavanaugh, messenger	208 70	
	F. Fox, messenger	208 70	
	[illegible] H. Shields, messenger	208 70	
	H. W. Wall, messenger	208 70	
	[illegible] Kimball, messenger	208 70	
	[illegible] W. Carr, messenger	208 70	
	J. R. Randall, messenger	208 70	
	W. E. Dougherty, messenger	208 70	
	A. A. Anderson, messenger	208 70	
	A. Pierson, messenger	208 70	
	H. [illegible] Hinman, messenger	208 70	
	[illegible] R. Lake, messenger	208 70	
	R. V. Bryan, messenger	208 70	
	J. Sanders, messenger in charge of storeroom	198 00	
	A. Hickman, laborer in charge of private passage	139 20	
	Jordan V. Jackson, laborer in charge of ladies' room	119 40	
	R. A. Jones, chief engineer	358 00	
	E. C. Shields, assistant engineer	238 70	
	[illegible] W. M. Curtis, assistant engineer	238 70	
	W. H. Prescott, assistant engineer	238 70	
	J. F. Johnston, conductor of elevator, November 8 to 30	75 60	
	A. L. Singleton, fireman	181 50	
	A. Langley, fireman, October 1 to November 9	119 02	
	J. Montgomery, laborer in engineer's department, October 1 to November 9	78 20	
	M. Underwood, laborer in engineer's department	119 40	
	G. Selby, laborer in engineer's department, October 1 to November 9	78 20	
	J. Hickman, laborer (skilled)	165 80	
	T. J. Burke, laborer (skilled)	165 80	
	J. N. Haddock, laborer (skilled)	165 80	
	H. L. Rouse, laborer (skilled)	165 80	
	H. G. Healy, laborer (skilled)	165 80	
	H. A. Pennell, laborer (skilled)	165 80	
	T. H. Moore, laborer (skilled)	165 80	
	F. E. Holmes, laborer (skilled)	165 80	
	J. Brown, laborer (annual)	119 40	
	M. Fuller, laborer (annual)	119 40	
	R. Johnson, laborer (annual)	119 40	
	C. F. Phillips, laborer (annual)	119 40	
	J. Dudley, laborer (annual)	119 40	
	F. M. Dodson, laborer (annual) October 1 to November 9	78 20	
	R. Mitchell, laborer (annual)	119 40	
	J. H. Pounder, laborer (annual) October 1 to 31	99 60	
	H. Hudnell, laborer (annual)	119 40	
	T. Wood, laborer (annual)	119 40	
	H. Stewart, laborer (annual)	119 40	
	H. G. Williams, laborer (annual) October 1 to November 14	58 65	
	F. M. Dodson, vice Langley, fireman, November 10 to 30	62 48	
	W. C. Frye, vice Montgomery, laborer in engineer's department, November 10 to 30	41 20	
	J. Montgomery, vice Dodson, laborer (annual) November 10 to 30	41 20	
	T. F. Anderson, vice Selby, laborer in engineer's department, November 10 to 30	35 20	
	W. W. Taylor, vice Pounder, laborer (annual) November 1 to 9	58 80	
	F. Gordon, vice Williams, laborer (annual) November 15 to 30	32 35	
	E. C. Moxley, vice Clarke, messenger to editorial reporters, November 5 to 30	101 75	
			$95,736
	By amount expended		$95,494
	By amount covered into the Treasury		422
	To amount drawn	$95,356 37	
		$95,356 37	$95,916

ADDEL STATEMENT OF DISBURSEMENTS FROM THE CONTINGENT FUND, FISCAL YEAR 1883.

Date.	No. of voucher.	To whom paid and for what object.	Amount.	Total.
1883.		EXPENDITURES ON ACCOUNT OF STATIONERY AND NEWSPAPERS.		
Oct. 7	1	Hon. J. R. Hawley: For commutation of allowance for stationery and newspapers, fiscal year ending June 30, 1883		$104 72
	2	Hon. J. B. Beck: For commutation of allowance for stationery and newspapers, fiscal year ending June 30, 1883, viz, Mar. 4 to June 30, 1883		40 75
		By amount expended		145 47
		To amount drawn	$145 47	
			145 47	145 47
Apr. 17	1	International Review: For the International Review, furnished during first session, Forty-eighth Congress, to Hon. J. Z. George, July 1, 1883, to June 30, 1884		5 00
	2	Houghton, Mifflin, & Co.: For the Atlantic Monthly, furnished during first session, Forty-eighth Congress, to Hon. J. Z. George, June 30, 1883, to June 30, 1884		4 00
25	3	L. Scott Publishing Co.: For the four Quarterlies and Blackwood's, furnished during first session Forty-eighth Congress, to Hon. W. Call, July 1, 1883, to June 30, 1884		10 00
29	4	L. Scott Publishing Co.: For the four Quarterlies and Blackwood's, furnished during first session, Forty-eighth Congress, to Hon. J. Z. George, July 1, 1883, to June 30, 1884		10 00
	5	The Evening Star: For the Star, furnished during first session, Forty-eighth Congress, to Hon. Geo. F. Edmunds, November 24, 1882, to December 23, 1882, inclusive		44
May 31	6	Littell & Co.: For the Living Age, furnished during first session, Forty-eighth Congress, to Hon. W. Call, August 11, 1883, to August 11, 1884		8 00
	7	Easton & Rupp: Sept. 28. For 100,000 cream ld. XXX—5 envelopes, at $1.85 per thousand	185 00	
		For 98,000 white wove XXX—5 envelopes, at $1.85 per thousand	181 30	
				366 30
Nov. 5	8	Courier-Journal: For the daily Courier-Journal, furnished during first session, Forty-eighth Congress, to Hon. W. Call, October 15, 1883, to December 1, 1883		1 50
7	9	Easton & Rupp:		
		Aug. 3. For ½ ream R. I. L. note and envelopes	1 65	
		13. For 1 ledger	5 25	
		For 1½ dozen rolls pins, at 75 cents	1 13	
		30. For 1 scrap book	85	
		Sept. 17. For 2 reams R. I. L. note, at $3.60	7 20	
		For 1 M envelopes to match	6 00	
		Oct. 19. For 10 quires manila paper	1 30	
		For 1 quire manila paper 40 by 48	1 50	
		For 3 dozen key rings, at 70 cents	2 00	
		For 9 dozen key rings	2 70	
		For 1 dozen bottles glue	1 50	
		For 1 dozen green pencils	75	
		For ½ dozen blank books, at $2.40	1 20	
		For 2½ dozen patent blotters, at $4.40	11 00	
		For 3 dozen packs blotters, at 60 cents	1 80	
		For 2 dozen steel erasers, No. 18149, at $3.67	7 34	
		For 2 dozen steel erasers No. 18149, bone, at $4.81	9 62	
		For 2 dozen steel erasers, No. 11698, at $3.03	6 06	
		For 2 dozen steel erasers, No. 11688, at $2.76	5 52	
		For 2 dozen steel erasers, No. 11687, at $2.45	4 90	
		For 20 dozen rolls pins asst., at 64 cents	12 80	
		For 6½ dozen sea island twine, at 41 cents	2 56	
		For 5 dozen eagle white twine, at 26 cents	1 30	
		For 10 dozen red and white twine, at 33 cents	3 30	
		For 3 dozen office scratch books, No. 5004, at 55 c.	1 65	
		For 3 dozen office scratch books No. 5005, at 77 c.	2 31	
		For 3 dozen office scratch books, No. 5006, at 80c.	2 40	
		For 3 dozen office scratch books, No. 5008, at 91c.	2 73	
		For 3 dozen office scratch books, No. 5010, at $1.08	3 24	

STATEMENT OF DISBURSEMENTS FROM THE CONTINGENT FUND, &c.—Contin

Date.	No. of voucher.	To whom paid and for what object.	Amount.	T
		STATIONERY AND NEWSPAPERS—Continued.		
1863.				
Nov. 7	9	Easton & Rupp—Continued.		
		Oct. 19. For 1 dozen office scratch books	$1 40	
		For 1 dozen office scratch books	1 60	
		For 6 dozen office scratch books, at $1.08	6 48	
		For 4 dozen office scratch books, at $2.91	11 64	
		For 6 dozen office scratch books, at 81 cents	4 86	
		24. For stamping letter paper	2 50	
		25. For 2 dozen office scratch books, No. 4044, at 81c	1 62	
		For 2 dozen office scratch books, No. 4046, at $1.08	2 16	
		For 2 dozen office scratch books, No. 4068, at $1.36	2 72	
		For 2 M envelopes, duplex, No. 6, at $1.75	3 50	
		For 1 M envelopes, white, No. 6½	2 50	
		For 1 M envelopes, white, No. 7	2 75	
		For 1 M envelopes, blue, No. 6	1 50	
		For ½ M envelopes, white, No. 14, at $6.00	3 00	
		For 1 M envelopes, assorted	3 75	
		For 1 M envelopes, cream, No. 4½	3 00	
		For 1 M baronial, No. 5	3 25	
		For ½ M square 9½ by 6½, at $10.00	2 50	
		For ½ M square 8½ by 6½, manila, at $5.00	1 25	
		For 1 blank book	50	
		For 1 dozen ½-pints, Carter's fluid	1 60	
		For 1 gross pocket pencils	4 00	
8	10	J. D. Free:		
		Nov. 7. For 5 reams Irish linen letter, at $5.50	27 50	
		For 1 dozen Coughlin's blotter, at $3.00	3 00	
	11	C. W. Thorn & Co.:		
		Apr. 9. For 62 sample Wostenholm knives	96 25	
		For 1 sample 21 tape	21	
		For 8 sample shears	4 48	
		Oct. 10. For 8 sample scissors	4 14	
		For 1 dozen silk taste	65	
		For 16 dozen spools red tape	3 18	
		13. For 1 dozen scissors, No. M. 1699, 4½	2 70	
		For 1 dozen scissors, No. M. 1699, 5	3 38	
		For 1 dozen scissors, No. M. 4519, 6	5 97	
		For 1 dozen scissors, No. M. 1741, 7	6 41	
		For ½ dozen scissors, No. M. 1723, 5½, at $4.78	2 87	
		23. For ½ doz. Wostenholm knives, No. 16613, at $23.21	11 60	
		For ½ doz. Wostenholm knives, No. 16610, at $16.94	8 47	
		For ½ doz. Wostenholm knives, No. 16473, at $11.66	5 83	
		For ½ doz. Wostenholm knives, No. 14419, at $22.55	11 28	
		For ½ doz. Wostenholm knives, No. 15187, at $14.30	7 15	
		For ½ doz. Wostenholm knives, No. 14368, at $13.42	6 71	
		For ½ doz. Wostenholm knives, No. 16172, at $16.28	8 14	
		For ½ doz. Wostenholm knives, No. 12914, at $26.62	13 31	
		For ½ doz. Wostenholm knives, No. 14994, at $16.28	8 14	
		For ½ doz. Wostenholm knives, No. 13429, at $20.13	10 06	
		For ½ doz. Wostenholm knives, No. 8244, at $18.70	9 35	
		For ½ doz. Wostenholm knives, No. 13406, at $14.08	7 04	
		For ½ doz. Wostenholm knives, No. 9421, at $15.18	7 59	
		For ½ doz. Wostenholm knives, No. 15617, at $33.88	16 94	
		For ½ doz. Wostenholm knives, No. 15389, at $11.44	5 72	
		For ½ doz. Wostenholm knives, No. 16425, at $10.12	5 06	
		For ½ doz. Wostenholm knives, No. 14348, at $17.38	8 69	
		For 2 doz. Wostenholm knives, No. 16625, at $44.88	89 76	
		For 1 doz. Wostenholm knives, No. 15417	11 44	
		Oct. 24. For 1 dozen shears, 7 inches	4 20	
		For 1 dozen shears, 8 inches	4 80	
		For 1 dozen shears, 9 inches	5 40	
		For 1 dozen shears, 10 inches	7 50	
		Nov. 2. For 1 dozen shears	8 64	
		For 1 dozen shears	6 87	
		For 1 dozen shears	5 76	
		For 1 dozen shears	9 95	
Dec. 1	12	R. Beall:		
		Nov. 5. For 1 dozen Dreka's papeteries, at $12	12 00	
		For 3 dozen Dreka's papeteries, at $10	30 00	
		For 1 dozen Dreka's papeteries	7 50	
		For 3 dozen Carter's mucilage, pints, at $3.71	11 13	
		9. For 2 dozen Irish linen papeteries, at $8.40	16 80	
		For 4 dozen Irish linen papeteries, at $9.24	36 96	
		10. For 5 M cream, No. 5–21, band envelopes, at $3.50	17 50	
		16. For ½ dozen papeteries, 2 quires, at $9.60	4 48	
		For 1 dozen papeteries, 2 quires	8 40	
		For ½ dozen papeteries, 2 quires, at $10.20	5 10	

STATEMENT OF DISBURSEMENTS FROM THE CONTINGENT FUND, &c.—Continued.

Date.	No. of voucher.	To whom paid and for what object.	Amount.	Total.
		STATIONERY AND NEWSPAPERS—Continued.		
1882.				
Dec. 1	12	R. Beall—Continued.		
		Nov. 16. For 1 dozen papeteries, 4 quires, beveled	$15 00	
		For 3 dozen papeteries, 1 quire, at $5.25	15 75	
		For ½ dozen papeteries, 1 quire, at $4.50	2 25	
		For ½ dozen papeteries, 1 quire, at $9.75	4 88	
		For ½ dozen papeteries, 1 quire, $6.75	3 37	
		For 2 dozen papeteries, 1 quire, at $5.25	10 50	
		For ½ dozen papeteries, 1 quire, at $4.50	2 25	
		For ½ dozen papeteries, Caurel's illustrated, at $15	7 50	
		For 1 dozen papeteries, 4 quires, buff glazed	22 50	
		For 3 gross all wood penholders	11 51	
		For 5 reams Crane's letter, No. 21, at $3.67	18 35	
		For 5 reams Crane's packet, No. 21	13 75	
		For 5 reams Crane's commercial, No. 21	9 20	
		22. For 1 ream buckram note, commercial	3 60	
		For 500 buckram envelopes	3 40	
		For 2 reams fancy note, octavo	3 12	
		For 1,000 fancy envelopes, octavo	3 16	
		For ½ dozen papeteries, 2 quires, Persian octavo, at $9	4 50	
		For ½ dozen papeteries, 1 quire, R. E. cards, at $8.30	4 15	
		For ½ dozen papeteries, 1 quire, Brit. backs, at $3.75	1 85	
		For 2 dozen papeteries, at $4.50	9 00	
		For ½ dozen papeteries, 2½ quires, plush, at $21	10 50	
		24. For 2 dozen Irish linen papeteries, at $8.40	16 80	
		26. For 5 gross lava pens, No. 4, at $1.30	6 50	
		27. For 5 M cream, No. 6, Bond envelopes, at $4.74	23 70	
				$377 81
3	13	C. W. Thorn & Co.:		
		Nov. 8. For 388 spools tape, No. 23, at 21c	81 48	
		10. For ½ dozen Wostenholm knives, No. 14369, at $26.62	13 31	
		For ½ dozen Wostenholm knives, No. 15196, at $15.84	7 92	
		For ½ dozen Wostenholm knives, No. 9445, at $22	11 00	
		For ½ dozen Wostenholm knives, No. 14336, at $12.10	6 05	
		For ½ dozen Wostenholm knives, No. 8635, at $26.18	13 09	
		For ½ dozen Wostenholm knives, No. 10529, at $25.63	12 81	
		For ½ dozen Wostenholm knives, No. 14344, at $12.20	6 60	
	14	Z. D. Gilman:		152 26
		Sept. 27. For 15 pounds sponge, at $1.75	26 25	
		Oct. 31. For 50 gross parlor matches, at 84 cents	42 00	
		Nov. 6. For 2 pounds sponge, at $160	3 20	
		For 1 dozen boxes quill points	3 60	
5	15	J. D. Free, jr.:		75 05
		Nov. 10. For 9 paper cutters	11 00	
		For 3 paper weights, at 25 cents	75	
		For 3 inkstands, at 50 cents	1 50	
		For 1 penknife	1 25	
		28. For 5 reams L. L. paper, at $3	15 00	
		For 2,500 envelopes	15 00	
		For 2 reams Sq. L. L. paper	4 50	
		For 1 M envelopes	5 50	
		Dec. 3. For 5 reams L. L. letter, heavy, at $7	35 00	
		For 2,500 envelopes to match, at $6	15 00	
	16	Wm. Ballantyne & Son:		104 50
		Sept. 17. For 10 M linen envelopes, No. 5, at $1.85	18 50	
		For 10 M white envelopes 6½ x 3½, at $2.50	25 00	
		For 25 M white envelopes 9½ x 4½, at $3.20	80 00	
		For 6 M cards and envelopes, 9½ x 4½, at $4.25	25 50	
		Oct. 9. For 25 gross Gillott's No. 404 pens, at 59 cents	14 75	
		For 1 ream white tissue paper	1 75	
		10. For 1 M white envelopes	2 37	
		For 100 cards and envelopes, at 43 cents	43	
		For 5 packages cards, at 9 cents	45	
		For 4 portfolios	9 86	
		For 23 scrap-books, asst	18 65	
		For 1 reference file	13	
		For 1 paper folder	35	
		For 2 dozen pencils	81	
		For 6 quarts ink, at 31 cents	1 86	

STATEMENT OF DISBURSEMENTS FROM THE CONTINGENT FUND, &c.—Continued

Date.	No. of voucher.	To whom paid and for what object.	Amount.	Total
		STATIONERY AND NEWSPAPERS—Continued.		
1883.				
Dec. 5	16	Wm. Ballantyne & Son—Continued.		
		Oct. 10. For 1 pint French ink	$0 19	
		For 1 quart viscid mucilage	23	
		For 1 pint nonpareil mucilage	11	
		For 1 bottle perfect mucilage	16	
		For 5 paper weights	1 15	
		For 9 inkstands	5 32	
		For 1 penwiper	09	
		For 4 box paper fasteners	91	
		For 4 sponge cups	28	
		26. For 50 dozen packs cards, at 40 cents	20 00	
		For 32 gross Faber's hex-pencils, at $5.62	179 84	
		For 24 dozen R. &. B. pencils, at 82½ cents	19 86	
		For 5 pounds velvet rubber, at 91 cents	4 55	
		For 6 dozen Faber's small I. & P. erasers, at 90 cents	5 40	
		For 6 dozen Faber's large I. & P. erasers, at $1.50	9 00	
		For 125 gross steel pens, at 59 cents	73 75	
		For 1 great gross bands, No. 8	90	
		For 1 great gross bands, No. 9	98	
		For 1 great gross bands, No. 10	1 03	
		For 1 great gross bands, No. 20	1 54	
		For 1 great gross bands, No. 11	1 16	
		For 1 great gross bands, No. 12	1 28	
		For 1 great gross bands, No. 13	1 41	
		For 1 great gross bands, No. 15	1 67	
		For 1 great gross bands, No. 16	1 80	
		For 1 great gross bands, No. 17	1 92	
		For 1 great gross bands, No. 18	2 06	
		For 1 great gross bands, No. 19	2 81	
		For 12 gross bands, No. 50, at 20½ cents	2 46	
		For 12 gross bands, No. 51, at 20½ cents	2 46	
		For 12 gross bands, No. 28, at 28½ cents	3 42	
		For 12 gross bands, No. 29, at 31 cents	3 72	
		For 12 gross bands, No. 30, at 34 cents	4 08	
		For 12 gross bands, No. 31, at 38 cents	4 56	
		For 12 gross bands, No. 32, at 42 cents	5 04	
		For 12 gross bands, No. 33, at 47 cents	5 64	
		For 60 gross bands, ½-inch assorted, at 40½ cents	24 15	
		For 48 gross bands, 00 assorted, at 93 cents	44 64	
		For 12 gross bands, 000 assorted, at $1.06½	12 81	
		For 12 gross bands, 0 assorted, at 79½ cents	9 51	
		27. For 1 dozen Rodgers knives, No. 12633	26 00	
		For ½ dozen Rodgers knives, No. 12721, at $28.50	11 88	
		For ½ dozen Rodgers knives, No. 12712, at $23.75	11 87	
		For 2 dozen Rodgers knives, No. 12582, at $15.75	31 50	
		For ½ dozen Rodgers knives, No. 21700, at $14.00	7 00	
		For ½ dozen Rodgers knives, No. 12787, at $13.50	6 75	
		For ½ dozen Rodgers knives, No. 24185, at $25	12 50	
		For 2 dozen Rodgers knives, No. 21693, at $14.70	29 40	
		For 1 dozen Rodgers knives, No. 12552, at $8.40	8 40	
		For ½ dozen Rodgers knives, No. 12801, at 18.40	9 20	
		29. For 6 dozen cloth penwipers, at $1.10	6 60	
		For 1 dozen safety inkstands, No. 2	3 85	
		For 10 dozen perfect mucilage, at $1.90	19 00	
		For 175 gross steel pens, at 59 cents	103 25	
		For 10 dozen paper folders, at $4.15	41 50	
		For 3 dozen R. R. files, No. 170, at $1.45	4 35	
		For 3 dozen R. R. files, No. 303, at $1 58	4 74	
		For ½ dozen inkstands, No. 80, at $9.75	4 87	
		Nov. 1. For 3 dozen quarts M. & N. ink, at $3.50	10 50	
		For 3 dozen pints M. & N. ink, at $2.15	6 45	
		For 1 dozen ½-pints M & N. ink	1 35	
		For 2 dozen quarts Arnold's fluid, at $4.40	8 80	
		For 2 dozen pints Arnold's fluid, at $2.75	5 50	
		For 1 1/11 dozen ½-pints Arnold's fluid, at $1.42	2 01	
		For 3 dozen quarts Carter's ink, at $6.10	18 30	
		For 3 dozen pints Carter's ink, at $3.82	11 46	
		For 1 dozen ½-pints Carter's ink	2 30	
		For 4 dozen quarts viscid mucilage	11 00	
		For 8 dozen portfolios, No. 43, at $38	304 00	
		For 1 dozen portfolios, No. 13	6 50	
		For 150 M. white envelopes, 5½x3½, at $1.92	288 00	
		2. For 3 dozen desk inks, 1 H., at 75 cents	2 25	
		For 5 flexible rubber rulers, at 40 cents	2 00	

STATEMENT OF DISBURSEMENTS FROM THE CONTINGENT FUND, &c.—Continued.

Date.	No. of voucher.	To whom paid and for what object.	Amount.	Total.
		STATIONERY AND NEWSPAPERS—Continued.		
1883.				
Dec. 5	16	Wm. Ballantyne & Son—Continued.		
		Nov. 2. For 1 flexible rubber ruler	$0 30	
		For 1 dozen rubber rulers, 18-inch	3 50	
		For 1 dozen rubber rulers, assorted	2 25	
		For ½ dozen, 2-quarts, M. & N. copy ink, at $5.50	2 75	
		For ½ dozen, ½-pints, Caw's ink, at $2.25	1 13	
		For ½ dozen, No. 2, Caw's ink, at 85 cents	42	
		For ½ dozen, quarts, Stafford's ink, at $6	3 00	
		For 3 dozen cards in cases, No. 12, at $1.20	3 60	
		For 3 dozen cards in cases, No. 13, at $1.30	3 90	
		7. For 25 gross Gillott's pens, at 59 cents	14 75	
		For 50 gross Perry's pens, at 96 cents	48 00	
		For 3 dozen Reynold's (pints) ink, at $2.20	6 60	
		For 3 dozen Reynold's (½-pints) ink, at $1.32	3 96	
				$1,779 04
7	17	J. J. Chapman:		
		July 17. For 200 cards, printed, at $1	2 00	
		For 1 box stationery	75	
		For 1 box stationery	75	
		For 2 wallets, at $2.50	5 00	
		Oct. 10. For 1 dozen letter books, at $1.10	13 20	
		15. For 3 copy cases, at $1.25	3 75	
		For 25 copy pads, at 20 cents	5 00	
		29. For 2 dozen carmine ink, at $2.98	5 96	
		Nov. 5. For 2 bottles copy ink	1 20	
		For 6 bottles black ink, at 50 cents	3 00	
		For 6 bottles black ink, at 25 cents	1 50	
		For 1 inkstand	2 13	
		For 3 folders, assorted	5 55	
		For 3 dozen penholders, at 75 cents	2 25	
		For 1 dozen envelope openers	4 80	
		For 3 boxes stationery, at $1.30	3 90	
		For 2 boxes linen paper and envelopes, at $1.70	3 40	
		For 6 boxes linen paper, at $1.40	8 40	
		For 6 bottles ink, at 60 cents	3 60	
		For 7 pen cleaners, at 6 cents	42	
		For 1 dozen L. D. scissors, at $1.20	14 40	
		For 12 dozen registers, at $1.75	21 00	
		For 3 dozen reporter's books, at 57 cents	1 71	
		For 1½ dozen reporter's books, at $1.04	1 53	
		For 10 bottles ink, at 60 cents	6 00	
		14. For 12 card cases, assorted	25 50	
		For 6 index memorandums, at 36 cents	2 16	
		For 3 visiting list, at $1.15	3 45	
		19. For 5 inkstands, assorted	5 15	
		For 1 dozen bottles French ink	4 20	
		24. For 9 papeteries, assorted	5 30	
		For 1 dozen corkscrews (o. k.)	5 40	
		For 12 memorandum books	9 45	
		For 6 gross pens, at $1	6 00	
		For 6 boxes cards and envelopes, at 40 cents	2 40	
		30. For 1 inkstand	1 30	
				191. 50
10	18	Wm. Ballantyne & Son:		
		Nov. 10. For 25 reams 6-pound note paper, at 99 cents	24 75	
		For 40 reams 5-pound note paper, at 83 cents	33 20	
		For 93½ reams 10-pound letter paper, at $1.65	153 86	
		For 77½ reams 5-pound letter paper, at 83 cents	64 33	
		For 4 pen holders	85	
		For 19 memorandum books, assorted	6 73	
		13. For 50 M cream envelopes, 5¼ x 3¼, at $1.92	96 00	
		For 50 reams 14-pound cap paper, at $2.31	115 50	
		For 99½ reams 5-pound note, at 83 cents	82 80	
		For 25 reams 14-pound legal cap, at $2.31	57 75	
		For 15 reams 5-pound note, at 83 cents	12 45	
		For 38⅔ reams 6-pound note, at 99 cents	38 36	
		For 11½ reams 5-pound note, at 83 cents	9 55	
		For 58½ reams 6-pound note, at 99 cents	57 92	
		14. For 1 card case	2 25	
		For 3 card cases, at $2	6 00	
		For 2 card cases, at 80 cents	1 60	
		For 1 card case	2 40	
		16. For 6 Favorite files, at 32 cents	1 92	
		19. For 2 dozen ½-pints nonpareil mucilage, at $1.35	2 70	
		For ½ dozen inkstands, No. 1964, at $8.50	1 42	
		For 1/12 dozen inkstands, No. 75, at $8.30	69	
		For 1/12 dozen inkstands, No. 2084, $5.70	48	

STATEMENT OF DISBURSEMENTS FROM THE CONTINGENT FUND, &c.—Continu

Date.	No. of voucher.	To whom paid and for what object.	Amount.	To
		STATIONERY AND NEWSPAPERS—Continued.		
1883.				
Dec. 10	18	Wm. Ballantyne & Son—Continued.		
		Nov. 19. For 8 reams 6-pound note-paper, at 99 cents	$7 92	
		20. For 200 gross rubber bands, grey, at 32 cents	64 00	
		For 100 gross rubber bands, red, at 33 cents	33 00	
		For 2 dozen sponge cups, at 95 cents	1 90	
		For 2 dozen sponge cups, at 90 cents	1 80	
		For 1 dozen sponge cups	60	
		For 21 reams 14-pound cap paper, at $2.31	48 51	
		For 25¼ reams 8-pound packet note, at $1.09	27 52	
		For 38 reams 12-pound letter, at $1.98	75 24	
		24. For 3 dozen memorandum books, at $4.32	12 96	
		For 1 dozen memorandum books, 727, at $4.20; 731, $2.40; 352, $3	9 60	
		For ½ dozen memorandum books, 2084, $5.40; 2085, $5.40; 2270, $2.40	6 60	
		For ½ dozen memorandum books, 2273, $3; 359, $4.20; 2082, $4.20; 908, $4.80; 912, $7.80	12 00	
		For ½ dozen memorandum books, 881, at $3.84	1 92	
		26. For 5 reams overland note, at $1.10	5 50	
		For 17 quires blue ragged edge note, per ream, $7.25	6 16	
		For 425 blue ragged edge envelopes, per M, at $14.50	6 16	
		For 6 quadrille papeteries, at 18 cents	1 08	
		2 reams quadrille note paper, at $1.75	3 50	
		For ½ M quadrille envelopes, at $2.40	1 20	
		For ½ ream mourning royal note paper, at $6.50	1 63	
		For ½ M mourning royal envelopes, at $9.50	1 19	
		For 3 quires mourning commercial note, at $6.50	98	
		For 3 packages mourning commercial envelopes, at $9.50	71	
		For 6 lap tablets, at 60 cents	3 60	
		For 1 lap tablet	3 60	
		For 1 alligator tablet	6 00	
		For 3 nickel board clips, at 40 cents	1 20	
		For 1 brass board clip	32	
		27. For 3 olive paper knives, at $1.35	4 05	
		For 1 ream linen note	1 05	
		For 1 ream 12-pound letter	1 98	
	19	Easton & Rupp:		$1,
		Nov. 8. For 5 M Marseilles linen envelopes, No. 5, at $2.38	11 90	
		For 5 M Marseilles linen envelopes, No. 6, at $2.75	13 75	
		For 25 reams Marseilles linen letter, at $1.90	47 50	
		For 50 reams Marseilles linen note, at $1.25	62 50	
		9. For 1 ream cloth face blotting	20 00	
		For 1 dozen letter clips	75	
		For 1,000 McGill's pin fasteners	2 50	
		For ½ dozen McGill's presses, at $16.50	8 25	
		For 1,000 McGill's staple fasteners	50	
		For 2 dozen combination rulers, 12-inch, at $1.40	2 80	
		For 1 dozen combination rulers, 15-inch	1 75	
		For 1 dozen bill files, No. 40	60	
		For 1 dozen bill files, No. 10	1 20	
		For 1 dozen indelible ink	2 25	
		For 6 boxes pins, assorted, at 40 cents	2 40	
		For 1 dozen yellow pencils	75	
		For 1 gross penholders	1 60	
		For 20 sheets black lines	50	
		For 100 cards and address	1 40	
		12. For 5 blank books, No. 323, at 40 cents	2 00	
		For 5 blank books, No. 326, at 75 cents	3 75	
		For 5 blank books, No. 328, at 85 cents	4 25	
		For 2 dozen Congress tie envelopes, at 60 cents	1 20	
		13. For 6 office scratch-books, at $2	12 00	
		14. For 5 boxes gum labels, at 10 cents	50	
		For 4 bunches tags, at 12½ cents	50	
		16. For 400 cards and printing	3 50	
		19. For 1 dozen document boxes, 11 x 4¼ x 4	6 00	
		For 1 dozen document boxes, 10 x 4½ x 2½	3 20	
		20. For 1 dozen half pints Carter's blue-black ink	1 50	
		For 1 dozen document boxes, 10 x 4 x 1	2 25	
		For 2 dozen Congress tie envelopes, No. 10, at 75 cents	1 50	
		For 2 dozen Congress tie envelopes, No. 11, at 85 cents	1 70	
		For 1 dozen Congress tie envelopes	90	
		For 1 dozen Congress tie envelopes	1 00	

STATEMENT OF DISBURSEMENTS FROM THE CONTINGENT FUND, &c.—Continued.

Date.	No. of voucher.	To whom paid and for what object.	Amount.	Total.
		STATIONERY AND NEWSPAPERS—Continued.		
1883.				
Dec. 10	19	Eaton & Rupp—Continued.		
		Nov. 21. For 1 dozen boxes eyelets, J. N	$1 20	
		For 1 dozen boxes eyelets, C. Z	2 00	
		22. For 4 dozen large Bristol cards, assorted, at 15 cents	60	
		For 2 small visiting lists, at $1	2 00	
		For 2 large visiting lists, at $1.25	2 50	
		For 2 clasp visiting lists, at $1.75	3 50	
		For ½ dozen McGill's staple presses, at $16.50	4 12	
		For 6 M McGill's fasteners, at 50 cents	3 00	
		26. For 1 dozen A. T. Cross's ink	2 25	
		For 1 gross pocket pencils	4 00	
		28. For 4 reams blue note (plain), at $1.25	5 00	
		For 1 P. O. box, 1 part	25	
		For 1 P. O. box, 2 part	40	
		For 2 arm rests, at 75 cents	1 50	
		30. For 1 blank book, 2-quire	90	
		For 1 blank book, 3-quire	1 35	
		For 2 blank books, 4-quire, at $1.80	3 60	
		For 1 blank book, 5 quire	2 25	
		Dec. 1. For 12 sheets oil board, at 12 cents	1 44	
		For 5 gross Lawrence metallic quills, at $2	10 00	
		4. For 1 M. T. scrap book, No. 8	1 00	
		For 1 M. T. scrap book, No. 10	2 50	
		For 1 M. T. scrap book, large	1 50	
				$285 51
	17	North American Review:		
		For the North American Review furnished during the first session Forty-eighth Congress to—		
		Hon. A. P. Gorman, January 1, 1884, to December 31, 1884	5 00	
		Hon. Benjamin Harrison, January 1, 1884, to December 31, 1884	5 00	
	21			10 00
		W. H. Bernard:		
		For the daily Star furnished during first session Forty-eighth Congress to Hon. J. B. Vance, June 30, 1883,		
	22	to June 30, 1884		7 00
		A. Brentano & Co.:		
		For the London Weekly Times, furnished during first session Forty-eighth Congress to Hon. J. Z. George,		
	23	November 16, 1883, to May 31, 1884		2 80
		News and Courier:		
		For the daily News and Courier, furnished during first session Forty-eighth Congress to Hon. J. R. Hawley,		
	24	December 12, 1883, to June 12, 1884		5 00
		Mail and Advertiser:		
		For the daily Advertiser and Mail, furnished during first session Forty-eighth Congress to Hon. John T. Mor-		
	25	gan, December 6, 1883, to June 6, 1884		15 00
		The Century Company:		
		For the Century, furnished during first session Forty-eighth Congress to Hon. Benjamin Harrison, Janu-		
	26	ary 1, 1884, to December 31, 1884		3 50
		Courier-Journal:		
		For the daily Courier-Journal, furnished during first session Forty-eighth Congress to Hon. J. Z. George, De-		
		cember 3, 1883, to June 2, 1884		6 00
		By amount expended		5,192 04
		To amount drawn	5,192 04	
			5,192 04	5,192 04
		HORSES AND MAIL-WAGONS FOR FISCAL YEAR 1884.		
July 31	1	J. M. Boyce *et ale.*:		
		J. M. Boyce, 31 days' service at Senate stables, at $75 per month	75 00	
		Richard Brown, 31 days' service, at $1 per day	31 00	
		F. Gordon, 31 days' service, at $1 per day	31 00	
				137 00
Aug. 30	2	J. M. Boyce *et ale.*:		
		J. M. Boyce, 31 days' service at Senate stables, at $75 per month	75 00	
		R. Brown, 31 days' service at Senate stables, at $1 per day	31 00	
		F. Gordon, 31 days' service at Senate stables, at $1 per day	31 00	
				137 00

STATEMENT OF DISBURSEMENTS FROM THE CONTINGENT FUND, &c.—Continued.

Date.	No. of voucher.	To whom paid and for what object.	Amount.	Total.
		HORSES AND MAIL WAGONS—Continued.		
1883.				
Oct. 1	3	J. M. Boyce *et als.*:		
		J. M. Boyce, 31 days' service at Senate stables, at $75 per month	$75 00	
		R. Brown, 31 days' service at Senate stables, at $1 per day	30 00	
		F. Gordon, 31 days' service at Senate stables, at $1 per day	30 00	
				$135 00
31	4	J. M. Boyce *et als.*:		
		J. M. Boyce, 31 days' service at Senate stables, at $75 per month	75 00	
		F. Gordon, for 31 days' service at Senate stables, at $1.25 per day	38 75	
		R. Brown, 31 days' service at Senate stables, at $1 per day	31 00	
				144 75
Nov. 30	5	J. M. Boyce *et als.*:		
		J. M. Boyce, 30 days' service at Senate stables, at $75 per month	75 00	
		F. Gordon, 14 days' service at Senate stables, November 1 to 14, at $1.25 per day	17 50	
		R. Brown, 30 days' service at Senate stables, November 1 to 30, at $1 per day	30 00	
		Henry Morris, 5 days' service at Senate stables, November 26 to 30, at $1 per day	5 00	
		Patrick J. McCrink, 10 days' service at Senate stables, November 21 to 30, at $1 per day	10 00	
		Thomas Folks, 10 days' service at Senate stables, November 15 to 24, at $1 per day	10 00	
				155 00
	6	J. R. Sneed:		
		July 26. For cash paid for salve for horses	50	
		Aug. 3. For cash paid for sending horse to pasture	5 75	
		Oct. 22. For cash paid for returning horses from pasture from Warrenton, Va	21 80	
		Oct. 27. For cash paid for freight on tricycle	1 80	
				29 85
	7	Thomas Smith:		
		For pasturing horses from July 1 to October 23: 3 from July 1 to October 23, 1883; 1 from August 4 to October, at $5 each, per month		60 67
Dec. 6	8	J. McDermott & Bros.:		
		July 6. Repairing wheel, $1; 4 steel tires and 64 bolts, $12	13 00	
		2 shaft-bolts and 4 turned head-bolts	1 25	
		2 gums, repairing bolts and clips, new clip and tightening	3 25	
		Aug. 10. 2 brake-bolts and packing-blocks, setting brake	2 00	
		Putting on 4 tires and repairing spokes and felloes	4 75	
		28 new tire-bolts	1 00	
		Oct. 18. New shaft, $2.75; putting on leathers, 50 cents	3 25	
		Repairing shaft-rim, 50 cents; 6 bolts, $1; repairing step, 75 cents	2 25	
		30. Repairing wheel, $2; 2 gums, new bolts, $1	3 00	
		Repairing body and top, $3.50; pin on bar, 25 cts	3 75	
		2 new plates on foot-board and new middle stay	2 50	
		10 bolts, $1.50; repairing gearing and 8 axle-washers, $2.00	3 50	
		Setting 4 tires, $3; 40 tire-bolts, $1	4 00	
		New cover for top and molding	3 50	
		New oil carpet in bottom	2 75	
		Repairing curtains and cushions	3 50	
		New sockets, 75 cents; painting wagon, $20	20 75	
		Lettering wagon	6 00	
				84 00
		By amount expended		891 77
		By amount covered into Treasury		208 23
		To amount drawn	1,100 00	
			1,100 00	1,100 00

STATEMENT OF DISBURSEMENTS FROM THE CONTINGENT FUND, &c.—Continued.

Date.	No. of voucher.	To whom paid and for what object.	Amount.	Total.
		FUEL AND OIL FOR HEATING APPARATUS.		
1883.				
Dec. 5	1	W. D. Wyvill:		
		Nov. 4. For 161 pounds cotton waste, at 14 cents		$22 54
	2	G. W. Moss:		
		Oct. 25. For 50 pounds lubricating compound, grade B. C., at 25 cents	$12 50	
		Nov. 11. For 5 barrels extra W. S. lard oil:		
		444. 67		
		446. 64		
		435. 66		
		446. 66		
		449. 66		
		2,220. 327 = 1,893 — 252⅞ gallons, at $1.10	277 64	
		For 50 pounds lubricating compound, grade P. J., at 25 cents	12 50	
				302 64
	3	T. B. Cross, jr.:		
		Nov. 19. For 740$\frac{1}{2}\frac{1}{2}\frac{1}{2}$ tons W. A. furnace coal, stowed in vaults United States Senate, at $5.99	4,443 77	
		For 53¼ cords pine wood, at $5.01	266 78	
		For 57 cords hickory, at $7.91	450 87	
				5,155 42
	11	4	Z. D. Gilman:	
		Sept. 24. For 1 barrel, 50 gallons lard oil, at 90 cents		45 00
		By amount expended		5,525 60
		To amount drawn	5,525 60	
			5,525 60	5,525 60
		FURNITURE AND REPAIRS.		
July 31	1	J. R. Zimmerman:		
		For 31 days' service, performed in making, repairing, and varnishing furniture for United States Senate, July 1 to 31, 1883, inclusive, at $3.50		$108 50
	2	Bernard Broecker:		
		For 31 days' service, performed in varnishing and repairing furniture for United States Senate, July 1 to 31, 1883, inclusive, at $2.50		77 50
	3	Thomas Folkes:		
		For 31 days' service, varnishing and repairing furniture for United States Senate, July 1 to 31, 1883, inclusive, at $2 per day		62 00
Aug. 31	4	J. R. Zimmerman:		
		For 31 days' service, varnishing, repairing, and making furniture for United States Senate, August 1 to 31, 1883, inclusive, at $3.50 per day		108 50
	5	B. Broecker:		
		For 31 days' service, varnishing, repairing, and making furniture for United States Senate, August 1 to 31, 1883, inclusive, at $2.50 per day		77 50
	6	T. Folks:		
		For 31 days' service, repairing, varnishing, and cleaning furniture for United States Senate, August 1 to 31, 1883, inclusive, at $2 per day		62 00
Oct. 1	7	V. Ulman:		
		For upholstering furniture for United States Senate, August 24 to September 29, 1883, inclusive, 32 days' service, at $3		96 00
	8	J. R. Zimmerman:		
		For making, repairing, and upholstering furniture for United States Senate, 30 days, September 1 to 30, 1883, inclusive, at $3.50 per day		105 00
	9	T. Folks:		
		For 30 days' service, repairing, varnishing, and cleaning furniture for United States Senate, September 1 to 30, inclusive, 1883, at $2 per day		60 00
	10	B. Broecker:		
		For repairing and varnishing furniture for United States Senate, 30 days, September 1 to 30, 1883, at $2.50 per day		75 00
	9	11	E. Rupp:	
		For caning 2 large chairs, at 1.75		3 50
Nov. 2	12	J. R. Zimmerman:		
		For 31 days' service, making and upholstering furniture for United States Senate, October 1 to 31, 1883 at $3.50 per day		108 50

STATEMENT OF DISBURSEMENTS FROM THE CONTINGENT FUND, &c.—Continued.

Date.	No. of voucher.	To whom paid and for what object.	Amount.	Total.
		FURNITURE AND REPAIRS—Continued.		
1883.				
Nov. 2	13	B. Broecker:		
		For 31 days' service, making, repairing, and varnishing furniture, October 1 to 31, 1883, at $2.50 per day		$77 50
	14	Thomas Folks:		
		For 31 days' service, repairing, varnishing, and cleaning furniture, October 1 to 31, 1883, at $2 per day		62 00
30	15	J. R. Zimmerman:		
		For 30 days' service, making, repairing, and varnishing furniture, November 1 to 30, 1883, at $3.50 per day		105 00
	16	R. Broecker:		
		For 30 days' service, making, repairing, and varnishing furniture, November 1 to 30, 1883, at $2.50 per day		75 00
	17	Mary A. Kelley:		
		For sewing carpets for United States Senate, 3 days, at $1.50		4 50
30	18	Lizzie Rupp:		
		For caning 2 chairs for United States Senate		2 50
	19	Mary Flemming:		
		For sewing 4 curtains in Senate Chamber		2 00
	20	Thomas Folks:		
		For services repairing, varnishing, and cleaning furniture, 14 days, November 1 to 14, 1883, inclusive, at $2 per day		28 00
	21	John F. Gates:		
		For services repairing and cleaning furniture, 26 days, November 5 to 30, 1883, at $2 per day		52 00
Dec. 5	22	Robert Leitch & Sons:		
		Sept. 10. For polishing and altering brasses for chairs	$4 50	
		For 12 brass step-guards, at $2.25	27 00	
				31 50
	23	W. D. Wyvill:		
		July 13. For 1 lock	35	
		17. For 1 varnish bucket and brush	1 00	
		19. For 6 dozen key blanks, at 60 cents	3 60	
		Aug. 9. For 8 dozen key blanks, assorted	1 10	
		13. For 6 chair-bottoms	1 50	
		Sept. 12. For 6 sets chair-casters, at 35 cents	2 10	
		For 6 sets socket-casters, brass, at $1	6 00	
		Oct. 31. For 2 pairs brass hinges	40	
		Nov. 1. For 2 iron handles, 20 cents; 1½ pounds chalk, 12 cents	32	
		8. For 1 gross 2½-inch screws	1 33	
		For 1 dozen cloak-hooks	25	
		12. For 4 dozen upholsterers' tacks, assorted	12 50	
		13. For 1 gross 1½-inch screws, 67 cents; 6 dozen brass screws, 42 cents	1 09	
		13. For 1 dozen key blanks, $1.50; 2 key blanks, 30 cents	1 80	
		21. For 4 pounds glue, $1.40; 1 cupboard lock, 35 cents	1 75	
		23. For 1 pair brass hinges, 20 cents; 2 saw-files, 25 cents	45	
		27. For 6 steel key blanks, 90 cents; 1 gross screws, 83 cents	1 73	
		30. For brass pins and washers	40	
		For 1 set castors, 50 cents; ½ dozen towel hooks, 20 cents	70	
				38 37
11	24	Z. D. Gilman:		
		July 3. For 1 gallon Biglow's varnish and can	2 75	
		20. For 2 new brushes	50	
		24. For 1 quart alcohol	63	
		Sept. 24. For 2 gallons varnish	5 00	
		For 2 pounds pulverized pumice stone	20	
		For 1 quart neat's-foot oil	30	
		Nov. 19. For 1 gallon hard oil finish	1 75	
		For sweet oil	25	
				11 38
13	25	Francis Miller:		
		July 16. For 2 gallons flowing varnish, at $3	6 00	
		Aug. 11. For 2 gallons oil finish, at $1.60	3 20	
		For 2 gallons turpentine, at 60 cents	1 20	
		30. For 2 gallons No. 1 copal varnish	4 00	

STATEMENT OF DISBURSEMENTS FROM THE CONTINGENT FUND, &c.—Continued.

Date.	No. of voucher.	To whom paid and for what object.	Amount.	Total.
		FURNITURE AND REPAIRS—Continued.		
1883.				
Dec. 13	25	Francis Miller—Continued.		
		Oct. 5. For 1 gallon flowing copal (extra)	$4 00	
		5. For 1 gallon turpentine	60	
				$19 00
		By amount expended		1,452 75
		By amount covered into Treasury		547 25
		To amount drawn	2,000 00	
			2,000 00	2,000 00
		MATERIALS FOR FOLDING.		
Aug. 14	1	Robert Beall:		
		July 2. 7$\frac{4}{5}$ reams manila paper 23x30, 42 lbs., at $5.09		36 65
Oct. 15	2	R. Beall:		
		Sept. 21. For 1,055 pounds soft twine, 5-pound balls, at 12$\frac{1}{2}$ cents		129 24
15	3	Z. D. Gilman:		
		Oct. 1. For 1,060 pounds hand twine, at 13$\frac{7}{8}$ cents		147 07
26	4	R. Beall:		
		Oct. 18. For 103$\frac{1}{2}$ reams manila paper, 28x32, at $7.20		743 40
Dec. 3	5	C. W. Thorn & Co.:		
		Oct. 8. For 800 reams tissue paper, 11x15, at 17$\frac{3}{4}$ cents		142 00
	6	Easton & Rupp:		
		Dec. 2. For 204$\frac{4}{16}$ reams rope manila, 12x19, 15 pounds, at $1.54	314 62	
		6. For 106 pounds twine, No. 18, B. C., at 18 cents.	19 44	
		For 105 pounds twine, No. 5, ply jute, at 12$\frac{1}{2}$ cents	13 13	
		For 26 pounds twine, No. 18, white, at 50 cents.	13 25	
				360 44
	7	Nescochaque Manufacturing Co.:		
		Nov. 12. For 400 reams No. 1 cream rope paper, 19x24—30=12,000 pounds, at 11 cents		1,320 00
		By amount expended		2,878 80
		By amount covered into Treasury		121 25
		To amount drawn	3,000 00	
			3,000 00	3,000 00
		PACKING-BOXES.		
5	1	W. D. Wyvill:		
		July 13. For 1 set corner irons for boxes	75	
		26. For 1 set corner irons for boxes	75	
		Nov. 13. For 6 dozen box locks, at $6	36 00	
		For 6 dozen pairs box hinges, at $3	18 00	
		For 6 dozen pairs box handles, at $3	18 00	
				73 50
		By amount expended		73 50
		To amount drawn	73 50	
			73 50	73 50
		MISCELLANEOUS ITEMS.		
Aug. 8	1	Mrs. Louisa Hilton:		
		July 31. To washing and ironing 61$\frac{1}{2}$ dozen towels for the United States Senate during the month of July, 1883, at 50 cents per dozen		30 75
17	2	W. C. & F. P. Church:		
		For the Army and Navy Journal, furnished the Senate Committee on Military Affairs, from July 1, 1883, to June 30, 1884		6 00
	3	The New York World:		
		For the daily World, furnished the office of the Secretary of the Senate, from July 1, 1883, to June 30, 1884		6 50
	4	The New York Times:		
		For the daily Times, furnished the office of the Secretary of the Senate, from July 1, 1883, to June 30, 1884		12 00
	5	The New York Tribune:		
		For the daily Tribune, furnished the office of the Secretary of the Senate, from July 1, 1883, to June 30, 1884		12 00
	6	The New York Sun:		
		For the daily Sun, furnished the office of the Secretary of the Senate, from July 1, 1883, to June 30, 1884		6 50

STATEMENT OF DISBURSEMENTS FROM THE CONTINGENT FUND, &c.—Continued.

Date.	No. of voucher.	To whom paid and for what object.	Amount.	Total.
		MISCELLANEOUS ITEMS—Continued.		
1883.				
Aug. 17	7	The New York Herald:		
		For the daily Herald, furnished the office of the Secretary of the Senate, from July 1, 1883, to June 30, 1884		$10 00
	8	The Cincinnati Enquirer:		
		For the daily Enquirer, furnished the office of the Secretary of the Senate, from July 1, 1883, to June 30, 1884		14 00
	9	The Courier-Journal:		
		For the daily Courier-Journal, furnished the office of the Secretary of the Senate, from July 1, 1883, to the 30th June, 1884		14 00
	10	The Boston Journal:		
		For the daily Journal, furnished the office of the Secretary of the Senate, from July 1, 1883, to June 30, 1884		6 00
	11	The Galveston News:		
		For the daily News, furnished the office of the Secretary of the Senate, from July 1, 1883, to June 30, 1884		10 00
	12	The New Orleans Times-Democrat:		
		For the daily Times-Democrat, furnished the office of the Secretary of the Senate, from July 1, 1883, to June 30, 1884		12 00
	13	The San Francisco Examiner:		
		For the daily Examiner, furnished the office of the Secretary of the Senate, from July 1, 1883 to June 30, 1884		6 00
	14	The Charleston News and Courier:		
		For the daily News and Courier, furnished the office of the Secretary of the Senate, from July 1, 1883, to June 30, 1884		10 00
	15	The Chicago Inter-Ocean:		
		For the daily Inter-Ocean, furnished the office of the Secretary of the Senate, from July 1, 1883, to June 30, 1884		10 00
	16	The Chicago Times:		
		For the daily Times, furnished the office of the Secretary of the Senate, from July 1, 1883, to June 30, 1884		13 00
	17	The Baltimore Sun:		
		For the daily Sun, furnished the office of the Secretary of the Senate, from July 1, 1883, to June 30, 1884		6 00
	18	The Baltimore American:		
		For the daily American, furnished the office of the Secretary of the Senate, from July 1, 1883, to June 30, 1884		9 00
	19	The Saint Louis Republican:		
		For the daily Republican, furnished the office of the Secretary of the Senate, from July 1, 1883, to June 30, 1884		12 00
	20	The Nashville American:		
		For the daily American, furnished the office of the Secretary of the Senate, from July 1, 1883, to June 30, 1884		12 00
	21	Metropolitan Street Railroad Company:		
		Aug. 23. To cash paid for street railroad tickets, for use in Secretary's office, United States Senate		20 00
	22	The Washington Post:		
		For two copies of the daily Post, furnished the United States Senate, one for Secretary's office, one for Senate Chamber, from July 1, 1883, to June 30, 1884		14 00
Sept. 17	23	John L. Wise:		
		July 26. For 2 dozen extra sweeping-brushes, at $25 per dozen		50 00
18	24	Mrs. Louisa Hilton:		
		Aug. 31. For washing and ironing 86¼ dozen towels, for the use of the United States Senate during the month of August, at 50 cents per dozen		43 12
Oct. 4	25	Mrs. Louisa Hilton:		
		Sept. 30. For washing and ironing 57¼ dozen towels, for the use of the United States Senate during the month of September, at 50 cents per dozen		28 58
8	26	Jacob Karr:		
		July 31. To winding, regulating, and repairing clocks for the Senate of the United States, for the month of July, as per contract		25 00
	27	J. Karr:		
		Aug. 31. To winding, regulating, and repairing clocks for the Senate of the United States, for the month of August, as per contract		25 00

STATEMENT OF DISBURSEMENTS FROM THE CONTINGENT FUND, &c.—Continued.

Date.	No. of voucher.	To whom paid and for what object.	Amount.	Total.
1883.		MISCELLANEOUS ITEMS—Continued.		
Oct. 8	28	J. Karr:		
		Sept. 30. To winding, regulating, and repairing clocks for the Senate of the United States, for the month of September, as per contract		$25 00
10	29	Independent Ice Company:		
		Sept. 30. To 97,400 pounds of ice, furnished the Senate of the United States, from July 1 to September 30, 1883, received as per contract, at 35 cents per cwt		340 90
Nov. 2	30	Mrs. Louisa Hilton:		
		Oct. 31. For washing and ironing 74½ dozen towels, for States Senate, during month of October, at 50 cents per dozen		37 25
7	31	Independent Ice Company:		
		Oct. 31. For 21,000 pounds ice, furnished the United States Senate, during October, 1883, at 35 cents per cwt		73 50
30	32	A. J. Hurdle:		
		Nov. 30. For services making wood boxes, for United States Senate, November 20 to 30, 10 days, at $2.50		25 00
Dec. 1	33	L. Hilton:		
		For washing and ironing towels, 89½ dozen, during November, 1883, at 50 cents		44 92
5	34	R. Beall:		
		For 1 Supplement Almanac de Gotha, 1883, Committee on Foreign Relations	$1 50	
		For 1 Annual Register, 1882, Foreign Relations	9 00	
		For 1 Imperial Dictionary, Judiciary	26 00	
				36 50
	35	Rob't Leitch & Son:		
		Nov. 15. For 100 feet linen hose, at 25 cents	25 00	
		For 1 inch hose-pipe	1 50	
		For 2 inch hose-couplings, at 50 cents	1 00	
		For wrapping hose	50	
				28 00
	36	W. D. Wyvill:		
		1883.		
		July 3. For 6 whitewash brushes, at $2.00	12 00	
		17. For 2-gallon water-cooler	5 00	
		Aug. 24. For 10 gallons security oil, $3; 1 oil-can, &c., $2.75	5 75	
		28. For 1 plated faucet and repairing water-cooler	5 00	
		Oct. 1. For 1 large watering-pot, $3.50; 1 ax and haft, $1.50	5 00	
		Nov. 6. For 6 whitewash brushes, at $2	12 00	
		For 1 50-gallon oil-tank	10 00	
		9. For 5 pounds candlewick, at 50 cents	2 50	
		12. For 1 dozen painted ice-buckets	9 00	
		For ½ dozen cedar horse buckets	6 00	
		For 1 dozen dust-pans	3 00	
		19. For 50 feet best ¾ hose	12 50	
		23. For 6 wooden buckets, at 40 cents	2 40	
		For 3 pairs coupling, $1.50; 3 pairs clamps, 75 cents	2 25	
		For 1 hose-pipe	1 00	
		24. For 2 wood-saws, $2; 2 bucks, $1	3 00	
		30. For 2 dozen ice-picks, at $2.40	4 80	
				101 20
	37	J. R. Sneed:		
		July 16. For cash paid for sawdust for scrubbing	1 00	
		Aug. 27. For cash paid for street-car tickets for post-office	20 00	
		Oct. 22. For cash paid for sawdust for scrubbing	1 00	
				22 00
11	38	Z. D. Gilman:		
		July 5. For 34 pounds Castile soap, at 13 cents	4 42	
		6. For 1 barrel soft soap	4 50	
		2. For 2 pounds alum	20	
		13. For 3 boxes crystal soap, at $3.50	10 50	
		20. For 1 dozen boxes wax tapers	3 50	
		24. For 10 pounds alum	1 00	
		Sept. 10. For 1 barrel soft soap, $4.50; 1 pound insect powder, 75 cents	5 25	
		22. For ½ dozen chamois skins	3 50	
		Oct. 19. For 1 dozen candles, 60 cents; 1 pound lamp-black, 10 cents	70	
		Nov. 10. For 6 boxes crystal soap, $21; 1 barrel soft soap, $4.50	25 50	

STATEMENT OF DISBURSEMENTS FROM THE CONTINGENT FUND, &c.—Continued.

Date.	No. of voucher.	To whom paid and for what object.	Amount.	Total.
		MISCELLANEOUS ITEMS—Continued.		
1883.				
Dec. 11	38	Z. D. Gilman—Continued.		
		Nov. 20. For 4 whisk brooms, at $3	$12 00	
		24. For 4 dozen hand dust-brushes (assorted)	30 50	
		For 12 dozen Hygienique toilet soap, at $3.75	45 00	
		For 6 dozen Ruger toilet soap, at $3.75	22 50	
		For 6 dozen Coudray toilet soap, at $3.75	22 50	
		For 6 dozen Bayles' spermaceti, at $6	36 00	
		For 6 dozen Hygienique "Dulcet" soap, at $4.25	25 50	
		For 6 dozen French blacking, at $1.20	7 20	
		For 3 dozen cologne, No. 4711, at $5.50	16 50	
		For 6 dozen dressing combs (assorted)	12 75	
		For 1 dozen hat-brushes	8 00	
		For 2 gallons cologne, at $7	14 00	
		For 6 dozen hair-brushes (assorted)	94 00	
		For 2½ dozen chamois skins, at $8	20 00	
		For 500 quinine pills, $10; 1 dozen shaving compounds, $4	14 00	
		For 1 gallon alcohol, $2.50; ½ gallon castor oil, $1.25	3 75	
		For 1 pint glycerine, $1; 1 dozen cosmetics, $1.50	2 50	
		For 1 dozen olive oil, $1; salts tartar, 10 cents	1 10	
		For 2 shaving brushes, $1.50; 2 ounces essential oil, $1	2 50	
		For 5 bath sponges, $5; 1 gallon spirits ammonia, 35 cents	5 35	
		For ½ dozen bottles Hygienique oil	3 00	
		For 2 barbers' combs, 40 cents; toilet powder, $1	1 40	
		For 2 gallons bay rum	7 00	
				$466 [illegible]
12	39	Pope Manufacturing Company:		
		Oct. 15. For tricycle for use of United States Senate riding pages		191 [illegible]
	40	Smith Bros. & Co.:		
		Nov. 17. For repairing rubber tires and recementing Columbia tricycle		3 [illegible]
13	41	Independent Ice Company:		
		Nov. 30. For 24,700 pounds ice for United States Senate during November, 1883, at 35 cents		86 [illegible]
14	42	M. G. Copeland:		
		Nov. 30. For 2 12-foot storm flags, at $12		24 [illegible]
17	43	J. R. Snead:		
		Nov. 22. For cash paid Adams Express Company, freight on 3 boxes to Washington from Boston, for Committee on Public Printing		9 [illegible]
		By amount expended		1,938 [illegible]
		By amount covered into Treasury		61 [illegible]
		To amount drawn	2,000 00	
			2,000 00	2,000 [illegible]
		POSTAGE.		
Aug. 29	1	City post-office:		
		For postage-stamps furnished Secretary's office, U. S. Senate, viz:		
		300 3-cent stamps	9 00	
		300 6-cent stamps	18 00	
		1,000 2-cent stamps	20 00	
		300 1-cent stamps	3 00	50 [illegible]
		By amount expended		50 [illegible]
		To amount drawn	50 00	
			50 00	50 [illegible]
		SPECIAL AND SELECT COMMITTEES, FISCAL YEAR 1883.		
		To error in last settlement	01	
		By amount covered into Treasury		01
			01	01
		SPECIAL AND SELECT COMMITTEES FOR FISCAL YEAR 1884.		
July 31	1	I. Kimball, jr.:		
		For 31 days' service as clerk to Select Committee on Education and Labor under resolution February 26, 1883, July 1 to 31, 1883, inclusive, at $6 per day		186 00

STATEMENT OF DISBURSEMENTS FROM THE CONTINGENT FUND, &C.—Continued.

Date.	No. of voucher.	To whom paid and for what object.	Amount.	Total.
		SPECIAL AND SELECT COMMITTEES, 1883-'84—Continued.		
1883.				
July 31	2	C. B. Reade: For 31 days' service as clerk to Select Committee on Rules, July 1 to 31, 1883, inclusive, at $6 per day		$186 00
	3	N. T. N. Robinson: For 31 days' service as clerk to Select Committee on Improvement of the Mississippi River, July 1 to 31, 1883, inclusive, at $6 per day		186 00
Aug. 29	4	I. Kimball, jr.: For 31 days' service as clerk to Select Committee on Education and Labor, July 1 to 31, 1883, inclusive, at $6 per day		186 00
30	5	C. B. Reade: For 31 days' service as clerk to Select Committee on Rules, August 1 to 31, 1883, inclusive, at $6 per day		186 00
Sept. 4	6	C. B. Lapham: For 62 days' service as clerk to Subcommittee on Foreign Relations, from July 1 to August 31, 1883, inclusive, at $6 per day		372 00
8	7	H. W. Blair: For amount advanced on account of expenses of the Subcommittee on Education and Labor, appointed to investigate relations between capital and labor, under resolution August 7, 1882, and February 26, 1883, advanced under the provisions of the act making appropriations to supply deficiencies, and for other purposes, approved March 3, 1879		5,000 00
17	8	N. T. N. Robinson: For 31 days' service as clerk to Special Committee on Improvement of the Mississippi River, August 1 to 31, 1883, inclusive, at $6		186 00
	9	Hon. H. W. Blair: For amount advanced on account of the Subcommittee on Education and Labor, under resolution August 7, 1882, and February 26, 1883, under an act making appropriations to supply deficiencies, and for other purposes, approved March 3, 1879		1,000 00
28	10	C. B. Reade: For 30 days' service as clerk to Committee on Rules, September 1 to 30, 1883, inclusive, at $6 per day		180 00
	11	N. T. N. Robinson: For 30 days' service as clerk to Special Committee to Investigate Improvements of Mississippi River, September 1 to 30, 1883, inclusive, at $6 per day		180 00
	12	Hon. H. W. Blair: For amount advanced on account of the Subcommittee on Education and Labor, under resolution August 7, 1882, and February 26, 1883, under act making appropriations to supply deficiencies, and for other purposes, approved March 3, 1879		1,000 00
Oct. 1	13	J. Kimball: For 30 days' service as clerk to Committee on Education and Labor, September 1 to 31, 1883, inclusive, at $6 per day		180 00
2	14	Hon. H. L. Dawes: For amount advanced on account of the Select Committee to Examine into the Condition of the Sioux Indians, &c., advanced under act to supply deficiencies, and other purposes, approved March 3, 1879		5,000 00
4	15	Hon. H. W. Blair: For amount advanced on account of the Subcommittee on Education and Labor, under resolution August 7, 1882, and February 26, 1883, under an act making appropriations to supply deficiencies, and other purposes, approved March 3, 1879		1,000 00
10	16	Hon. E. G. Lapham: For amount advanced on account of the Subcommittee on Foreign Relations, under an act making appropriations to supply deficiencies, and for other purposes, approved March 3, 1879		500 00
15	17	Hon. H. W. Blair: For amount advanced on account of the Subcommittee on Education and Labor, under resolutions August 7, 1882, and February 26, 1883, under an act making appropriations to supply deficiencies, and for other purposes, approved March 3, 1879		1,000 00

STATEMENT OF DISBURSEMENTS FROM THE CONTINGENT FUND, &c.—Conti

Date.	No. of voucher.	To whom paid and for what object.	Amount.	T
		SPECIAL AND SELECT COMMITTEES, 1883-'84—Continued.		
1883.				
Oct. 15	18	Hon. E. G. Lapham: For amount advanced on account of the Subcommittee on Education and Labor, under an act making appropriations to supply deficiencies, and for other purposes, approved March 3, 1879		
	19	Hon. John Sherman: For amount advanced on account of the Committee on Rules, under an act making appropriations to supply deficiencies, and for other purposes, approved March 3, 1879		
23	20	Hon. J. A. Logan: For amount advanced on account of select committee to examine into the works now in progress for the improvement of the Mississippi River, under an act making appropriations to supply deficiencies, and for other purposes		
30	21	C. B. Reade: For 31 days' service as clerk to the Committee on Rules, October 1 to 31, 1882, inclusive, at $6 per day		
	22	N. T. N. Robinson: For 31 days' service as clerk to Select Committee to Investigate Improvement of Mississippi River, October 1 to 31, 1883, inclusive, at $6 per day		
Nov. 2	23	C. B. Lapham: For 61 days' service as clerk to Subcommittee on Foreign Relations, September 1 to October 31, 1883, inclusive, at $6 per day		
	24	I. Kimball, jr.: For 31 days' service as clerk to Subcommittee on Education and Labor, October 1 to 31, 1883, inclusive, at $6 per day		
	25	Hon. H. W. Blair: For amount advanced on account of Subcommittee on Education and Labor, under resolution of August 7, 1882, and February 4, 1883, under an act making appropriations to supply deficiencies, and for other purposes, approved March 3, 1879		
30	26	N. T. N. Robinson: For 30 days' service as clerk to Select Committee to Investigate Improvement of the Mississippi &c., November 1 to 30, 1883, inclusive, at $6 per day		
	27	C. B. Reade: For 30 days' service as clerk to Committee on Rules, November 1 to 30, 1883, inclusive, at $6 per day		
	28	I. Kimball, jr.: For 30 days' service as clerk to Subcommittee on Education and Labor, March 1 to 30, 1883, inclusive, at $6 per day		
Dec. 10	29	C. B. Reade: For 9 days' service as clerk to Committee on Rules, December 1 to 9, 1883, inclusive, at $6 per day		
	30	C. B. Lapham: For 39 days' service as clerk to the Subcommittee on Foreign Relations, November 1 to December 9, 1883, inclusive, at $6 per day		
15	31	N. T. N. Robinson: For 15 days' service as clerk to Select Committee on Improvement of Mississippi River, &c., December 1 to 15, 1883, inclusive, at $6 per day		
		By amount expended		
		By amount covered into Treasury		
		To amount drawn	$40,000 00	
			40,000 00	

RECAPITULATION.

SALARIES AND MILEAGE OF SENATORS:		
Fiscal year 1883:		
To amount of balance July 4, 1883	$10,666 92	.....
By amount paid Senators	.....	$9,038 98
By amount covered into Treasury	.....	1,627 94
Fiscal year 1884:		
To amount drawn	200,000 00	.....
By amount paid Senators	.....	153,013 80
By amount covered into Treasury	.....	46,986 20
	210,666 92	210,666 92
SALARIES OF OFFICERS, CLERKS, EMPLOYÉS, &C.:		
To amount drawn	96,856 37	.....
By amount expended	.....	96,434 03
By amount covered into Treasury	.....	422 34
	96,856 37	96,856 37
CONTINGENT EXPENSES.		
STATIONERY AND NEWSPAPERS:		
Fiscal year 1883:		
To amount drawn	145 47	.....
By amount expended	.....	145 47
Fiscal year 1884:		
To amount drawn	5,192 04	.....
By amount expended	.....	5,192 04
HORSES AND MAIL WAGONS:		
To amount drawn	1,100 00	.....
By amount expended	.....	891 77
By amount covered into Treasury	.....	208 23
FUEL AND OIL FOR HEATING APPARATUS:		
To amount drawn	5,525 60	.....
By amount expended	.....	5,525 60
FURNITURE AND REPAIRS:		
To amount drawn	2,000 00	.....
By amount expended	.....	1,452 75
By amount covered into Treasury	.....	547 25
MATERIALS FOR FOLDING:		
To amount drawn	3,000 00	.....
By amount expended	.....	2,878 80
By amount covered into Treasury	.....	121 20
PACKING-BOXES:		
To amount drawn	73 50	.....
By amount expended	.....	73 50
MISCELLANEOUS ITEMS:		
To amount drawn	2,000 00	.....
By amount expended	.....	1,938 49
By amount covered into Treasury	.....	61 51
POSTAGE:		
To amount drawn	50 00	.....
By amount expended	.....	50 00
EXPENSES OF SPECIAL AND SELECT COMMITTEES:		
Fiscal year 1883:		
To error in last settlement	01	.....
By amount covered into Treasury	.....	01
Fiscal year 1884:		
To amount drawn	40,000 00	.....
By amount expended	.....	31,370 00
By amount covered into Treasury	.....	8,630 00
	59,086 62	59,086 62

RECAPITULATION—Continued.

To balance on hand July 4, 1883:			
Salaries and mileage of Senators	$10,666 92		
Contingent expenses (error in last settlement)	01		
Total on hand		$10,666 93	
To amounts drawn on account of—			
Salaries and mileage of Senators	200,000 00		
Salaries of officers, clerks, employés, &c	96,856 37		
Contingent expenses	59,086 61		
Total drawn		355,942 98	
By amounts expended on account of—			
Salaries and mileage of Senators	162,052 78		
Salaries of officers, clerks, employés, &c	96,434 03		
Contingent expenses	49,518 42		
Total expended			$308,0
By amounts covered into Treasury—			
Salaries and mileage of Senators	48,614 14		
Salaries of officers, clerks, employés, &c	422 34		
Contingent expenses	9,568 20		
Total covered into Treasury			58,6
		366,609 91	366,6

STATIONERY ON HAND DECEMBER 18, 1883.

1	ream journal-cap paper	$5 75	50	sand-boxes	$
6	reams flat-cap paper	23 50	6	pen-cleaners	
66	reams legal-cap paper	155 00	7	ink-extractors	
148	reams record-cap paper	360 00	120	key-rings	
310	reams letter-paper	660 75	4	letter-scales	
15	reams bath paper	60 00	263	pieces rubber	
35	reams packet note-paper	48 00	540	pocket-pencils	3
500	reams note-paper	585 00	40	gross pencils	3
855	reams wrapping-paper	151 00	120	boxes pencil-leads	
3	reams blotting-paper	60 00	60	dozen packs cards	
330	sheets parchment	118 80	55	folders	
15	sheets ruled lines	75	20	baskets	
126	packs blotting-pads	6 30	348	balls twine	
20	desk-pads	18 00	280	spools tape	
96	patent blotters	60 00	12	pieces silk taste	
1,000	tablets and scratch-books	130 00	625	gross rubber bands	3
400	papeteries	390 00	200	knives	4
630,000	envelopes	1,840 00	56	rulers	
20,000	newspaper-wrappers	38 00	120	erasers	
500	sponges	30 00	168	pocket-books	3
110	sponge-cups	18 00	180	blank-books	1
6	pounce-boxes	90	170	memorandum-books	
24	boxes pounce	3 00	28	autograph-books	
12	gross penholders	90 00	60	scrap-books	
770	gross pens	534 66	2	hectographs	
85	gold pens and holders	95 00	16	sheets oiled boards	
50	pen-wipers	5 00	18	brushes	
300	inkstands	85 00	2	bowls	
500	bottles ink	140 00	6	Shipman's files	
340	bottles mucilage	48 00	45	portfolios	
50	mucilage-stands	26 00	50	corkscrews	
20	match-stands	4 55	204	scissors and shears	1
120	gross matches	120 00	42	paper-weights	
24	boxes eyelets	3 20	24	pincushions	
6	eyelet-machines	12 00	20	pamphlet-cases	
254	boxes paper-fasteners	53 00	90	gross linen file-strings	2
30	letter-clips	8 00	20	dozen thumb-tacks	
6	paper-files	6 00	30	pen-racks	
90	patent files	16 00	8	tape-measures	
15	box-files	3 00	200	bunches quills	
200	papers pins	13 50	8	papers sand	
3	wafer-stands	75			
20	pounds sealing-wax	10 50		Total	8,9

Stationery in use in the office of the Secretary of the United States Senate 2

roperty, &c., in possession of the Secretary of the Senate on the 18th of December, 1883.

SECRETARY'S ROOM.

Brussels carpet.
mirror.
large book-cases.
clock.
sets rep and lace curtains with walnut cornices.
3 linen shades.
4 leather-covered chairs.
2 walnut revolving chairs.
3 cane-seat chairs.
2 table desks.
1 silver-plated pitcher.
1 rug.
3 cuspidors.
1 poker, shovel, and tongs.
1 feather duster and whisk-broom.
1 small mirror.
1 brush and comb.
2 tumblers.
1 soap-dish.
1 Worcester's Dictionary.
1 Lippincott's Gazetteer.
1 sofa.
4 rubber mats.
1 fire-screen.

FINANCIAL ROOM.

1 Hall's safe.
1 Herring & Floyd's safe.
1 walnut-table desk.
3 small walnut tables.
1 walnut hat-rack.
3 walnut revolving chairs.
2 walnut chairs.
1 cylinder desk.
1 large mirror.
1 calendar-clock.
1 Brussels carpet.
3 rugs.
4 rubber mats.
1 silver-plated pitcher.
1 soap-dish.
1 hair-brush and comb.
1 whisk-broom.
4 cuspidors.
1 glass tumbler.
1 nail-brush.
2 sponge cushions.
1 feather duster.
2 foot-stools.
2 linen curtains.
1 set Revised Statutes.
1 leather-covered sofa.

EXECUTIVE CLERK'S ROOM.

1 mirror.
1 marble clock.
1 rosewood upright desk.
1 table-desk.
1 table and case of pigeon-holes.
1 walnut case.
1 walnut chair.
1 mohair sofa.
1 step-ladder.
3 rubber mats.
3 cuspidors.
1 water-cooler.
1 umbrella-stand.
1 foot-stool.
3 large book-cases.
1 hair-brush.
1 soap-dish.
1 Worcester's Dictionary.
1 glass tumbler.
3 walnut revolving chairs.
1 Brussels carpet.

CHIEF CLERK'S ROOM.

6 large book-cases.
3 table-desks.
3 upright desks.
1 set walnut pigeon-holes.
3 cases, with drawers (1 mahogany and 2 pine).
5 walnut revolving chairs.
2 leather-covered mahogany chairs.
3 walnut chairs.
1 mirror.
1 cylindrical desk.
1 umbrella-stand.
1 clock.
4 rubber mats.
4 spittoons.
1 Brussels carpet.
2 revolving book-stands.
1 feather duster.
1 Webster's Dictionary.
1 whisk-broom.
1 step-ladder.
2 stationery cases.
Foot-stools.

ENGROSSING AND ENROLLING ROOM.

1 mirror.
1 marble clock.
1 Brussels carpet.
1 table-desk.
4 upright desks.
1 printing-house desk.
1 table-desk with pigeon-holes.
2 mahogany cases for bill blanks.
1 large newspaper rack.
8 revolving chairs.
7 cane-seat chairs.
5 large cases.
6 spittoons.
2 feather duster.
1 portable-desk top.
1 water-cooler.
2 tumblers.
1 china soap-dish.
1 step-ladder.
1 Worcester's Dictionary.
1 Webster's Dictionary.
1 Lippincott's Gazetteer.
1 walnut desk with revolving top
1 book-stand.
6 rubber mats.
1 foot-stool.

LOWER FILE ROOM.

3 step-ladders.
2 cane chairs.
1 cane arm-chair.
1 table.
1 carpet.
Book-shelves.
1 seal, Senate United States.

STATIONERY ROOM.

1 large table with drawers.
2 flat tables.
1 walnut revolving chair.
3 walnut chairs.
2 step-ladders.
1 ladder.
1 spittoon.
1 set of shelves.
1 feather duster.
1 whisk-broom.
1 hair-brush and comb.
1 plated ice pitcher and 1 tumbler.
1 soap-dish.
1 looking-glass.
1 umbrella-stand.
1 large waste-basket.
1 dusting brush.
1 clock.
1 Worcester's Dictionary.
1 Brussels carpet.
1 broom.
1 drop-light.
1 hammer.
1 hatchet.
1 mallet.
1 box-chisel.
1 small scales.

SENATE LIBRARY.

Room 1.

Large book-cases with shelves
1 desk with top.
2 large tables.
1 hair-cloth chair.
1 leather arm-chair.
1 cane arm-chair.
1 step-ladder.
1 Brussels carpet.
1 fire-blower.
1 large square waste-basket.
1 rug.
1 revolving book-rack.
1 hat-rack.
1 water-pitcher.

Room 2.

Shelves for books.
1 table-desk.
1 upright desk with drawers.
1 long table.
2 square tables.
1 hair-cloth arm-chair.
2 hair-cloth chairs.
1 cane chair.
1 revolving stool.
1 sofa.
3 spittoons.
1 portable desk top.
1 letter-press.
3 step-ladders.
1 shovel, poker, and tongs.
4 feather dusters.
1 Brussels rug.
1 mat.
1 Brussels carpet.
2 whisk-brooms.
1 leather-covered sofa.
1 revolving book-rack.

Room 3.

Book-shelves.
1 cane chair.
1 step-ladder.
1 spittoon.
1 fender and blower.
1 Brussels carpet.
1 small table.
2 glass tumblers.
1 basin, pitcher, and soap-dish.
1 small looking-glass.
1 water-cooler.
1 water-bucket.
2 brooms.
Matting.

STOREROOM.

Lot of old carpet.
Water-buckets (in use).
Brooms.
Whisk-brooms.
1 dust pan and brush.
Awnings.
2 coal-hods.
Feather dusters.
Books in Senate library as shown by catalogue thereof.

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48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 36.

IN THE SENATE OF THE UNITED STATES.

JANUARY 21, 1884.—Ordered to lie on the table and be printed.

Mr. GIBSON submitted the following

RESOLUTION:

Resolved, That the Committee on Foreign Relations be instructed to ascertain and report to the Senate what discriminations, if any, have been made by foreign Governments against the people of the United States by allowing drawbacks in favor of their own exportations that come in competition with ours in the open markets of the world, or by subsidies or special bounties in favor of their steamship lines, or that impose export duties upon commodities largely consumed in the United States, or that prohibit or restrain the importations of the productions of the United States by unusual laws and regulations, or by higher rates when on American vessels, or by special reciprocity treaties or otherwise; and also the force and effect of the most favored nation clause as found in commercial or reciprocity treaties, with such recommendations as the Committee on Foreign Relations may deem necessary and proper.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 37.

REPORT

OF THE

COLUMBIA INSTITUTION FOR THE DEAF AND DUMB,

FOR THE YEAR 1883.

CONTAINING

An itemized statement of all employés, their salaries or wages, respectively, and also of all other expenses of said institution, by E. M. Gallaudet, president.

JANUARY 21, 1884.—Referred to the Committee on the District of Columbia and ordered to be printed.

COLUMBIA INSTITUTION FOR THE DEAF AND DUMB,
KENDALL GREEN, NEAR WASHINGTON, D. C.,
January 12, 1884.

To the honorable the Senate and House of Representatives of the United States of America:

In pursuance of the requirements of section 4867 of the Revised Statutes of the United States, and of an act of Congress approved March 3, 1883, I have the honor to submit the following report:

The employés of the institution, and the rates of compensation paid to each, are as follows:

President, *ex-officio* professor of moral and political science, and disbursing agent (with board of family)	$4,000
Two professors, each with a house	2,400
One principal of primary department, with house	2,000
One professor, with board	2,000
One professor, with board	1,500
One assistant professor, with board	1,500
One assistant professor, with house	1,500
One instructor in primary department, with house	1,200
Two instructors in primary department, with board, each	500
One instructor in primary department, with board	480
One instructor in drawing, per month	40
One instructor in gymnastics, per month	35
One supervisor, with board of two persons	1,200
One matron, with board	500
One assistant matron, with board	400
One usher, per month	25
One master mechanic, in charge of shop, with house	1,080
One steward and farmer, with house	720
One gate-keeper and gardener, with lodge	480
One assistant gardener, with board	144
One janitor, with rooms	480
One fireman, with board	396
One carriage driver, with board	336
One chief cook, with board	240
Two assistant cooks, with board, each	168
One seamstress, with board	144
One assistant seamstress, with board	132

One waitress, with board
Two waitresses, with board, each
Two chambermaids, with board, each
One chief laundress, with board
Three assistant laundresses, with board, each
One farm hand, with house
One farm hand, with rooms
One laborer, with board

The receipts and disbursements of the institution for the year e
June 30, 1883, have been as follows:

I.—SUPPORT OF THE INSTITUTION.

Receipts.

Balance from old accounts	$1,
Received from Treasury of the United States	55,
Received from sale of live-stock	
Received from sale of wheat	
Received from manual-labor fund	
Received from board and tuition	3,
Received from old material sold	
Received for work done in shop	
Received for damage to grounds	
Received from sale of old wagons	
Received from sale of grease	
Received from sale of old carpets	
Received from sale of old metal	
Received from sale of old lumber	
Found in the laundry	
	61,

Disbursements.

Expended for salaries and wages out of appropriations by Congress	$21,
Expended for salaries and wages out of funds belonging to the institution	6,
Expended for groceries	2,
Expended for meats	4,
Expended for potatoes	
Expended for tea	
Expended for poultry, fish, &c	
Expended for oysters	
Expended for china, glass, &c	
Expended for soap stock	
Expended for board of Thomas Peters, in vacation	
Expended for freights	
Expended for postage and telegram	
Expended for vegetables, &c	
Expended for fruits	
Expended for traveling expenses	
Expended for labor	
Expended for incidentals	
Expended for butter and eggs	2,
Expended for repairs	3,
Expended for permanent improvements	4,
Expended for furniture	
Expended for books and stationery	
Expended for farm tools, seeds, &c	
Expended for lumber	
Expended for printing	
Expended for ice	
Expended for medicines and chemicals	
Expended for carriage and repairs	
Expended for hardware	
Expended for fuel	2,
Expended for blacksmithing	
Expended for harness and repairs	

for rent of telephones	$135 00
for flour and feed	713 45
for dry goods, shoes, clothing, &c	361 17
for gas	996 66
for paints, oils, &c	313 85
for flowers and plants	126 50
for milk	665 69
for entertainment of pupils	35 00
for medical and surgical attendance	493 00
for illustrative apparatus	100 05
for board and care of pupil at institution for feeble-minded	300 00
for bread	1,135 29
for concrete roadway	884 56
of the board of directors	229 70
ance	211 24
	61,167 66

II.—BUILDINGS AND GROUNDS.

Receipts.

from Treasury of the United States	$5,500 00

Disbursements.

for excavating for barn	$345 00
for material and brick-work	316 04
for plumbing	98 46
for wages	1,308 06
for lumber	1,637 56
for slating	400 00
for painting	70 00
for carpenter work	885 50
for grading	98 48
for concrete roadways	284 40
for lightning rods	56 50
	5,500 00

ctfully submitted.

E. M. GALLAUDET,
President.

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 38.

IN THE SENATE OF THE UNITED STATES.

JANUARY 23, 1884.—Ordered to be printed.

Mr. SHERMAN submitted the following

RESOLUTION:

Whereas among the expressed objects for which the Constitution of the United States was established were those to establish justice and insure domestic tranquillity; and

Whereas the Constitution provides for the security to all citizens of equal civil rights, and to all citizens the privileges and immunities that belong to the condition of citizenship, and that the right of citizens of the United States to vote shall not be denied by the United States, or any State, on account of race, color, or previous condition of servitude; and further provides "that no State shall deny to any person within its jurisdiction the equal protection of the laws"; and

Whereas among the privileges and immunities inherent in citizenship are the right peaceably to assemble for the consideration of questions of State and national concern, and safely to discuss the same, and the right to exercise the elective franchise in every State freely and without molestation or intimidation; and

Whereas a general election was to occur, and did occur, in the State of Virginia on the 6th day of November, 1883; and

Whereas it is alleged and currently reported in the public press that on or about the 3d day of November, 1883, at Danville, in said State, a large number of peaceable citizens of the United States and of said State were violently assailed by an organized body of men and fired upon, and several of them killed, by said armed men conspiring to affect, and with the purpose of affecting, the result of said election so about to occur, by creating, by means of such unlawful violence and homicide, a state of alarm on the part of peaceable citizens throughout said State, which should induce them to refrain from voting or to vote differently from their previous intentions at said election; and

Whereas it is alleged that all the victims of said attack were of one race and of one political party, and all their assailants of an another; and

Whereas it is alleged that the authorities of said State of Virginia have not brought any of the persons connected with said alleged conspiracies, violence, and homicides before the courts of justice for examination or trial, whereby the equal rights of citizenship and the equal protection of the laws have not been secured to all the people of said State; and

Whereas a general election was to occur, and did occur, in the State of Mississippi on the 6th day of November, 1883; and

Whereas it is alleged and currently reported in the public press that prior to said election, in the county of Copiah, State of Mississippi,

there was an organized movement by members of one party to preve members of another party from voting at that election, and to preve the free and open discussion and expression of political opinions; th this purpose was carried into execution by organized plans of ter and violence; that the means used for that purpose were by lawl and organized mobs, moving by night and by day, assaulting, and some cases killing, lawful voters, with a view, by terror and fear of v lence, to deter others from voting; that this violence was committed one party upon the members of another party with a view to depr the latter of their Constitutional rights, and extended throughout t said county of Copiah and into portions of other counties of th State; that, as a part of this general plan and conspiracy, one J. Matthews, a peaceable and law-abiding citizen of Copiah County, v warned not to vote, and upon his voting on the day of election v murdered at the place of election by a person selected for that purpc and with the approval, express or implied, of the officers of election, a no effort was made to punish the murderers; that this killing was s sequently approved by a public meeting in said county, compo strictly of members of one party, and the following resolutions w adopted:

Whereas certain rumors are current that the relatives of the late J. P. Matth have threatened the peace of society, in order to avenge his death, by killing De crats and destroying their property: Now, therefore, be it

Resolved, by the people of Copiah County in mass meeting assembled this day at the co house of said county, That if any person shall be injured, or an attempt made to in him, either in person or in property, in any manner by the said relatives or friend said J. P. Matthews, that we hereby declare that we will hold his said relatives friends who participate accountable for the same, and that we will regard then without the pale and protection of the law, and common enemies of society, and we will visit upon them certain swift retribution. Be it further

Resolved, That so long as the friends and relatives of the said J. P. Matthews c the laws and become good citizens, we hereby pledge them the protection of the

Resolved further, That in the opinion of this meeting it is necessary to the safet society and the welfare of all races and classes in this county that the Matth family shall keep out of politics in Copiah County.

Resolved further, That from henceforth no man or set of men shall organize the n race against the whites in this county, and, if it shall be attempted in the future hereby give notice that it shall be at the peril of the person or persons attemptin to do.

Resolved, That we do hereby pledge ourselves, each to the other, our lives and tunes and our sacred honor, that we will, all and individually, from henceforth, ourselves in readiness to enforce the foregoing resolutions, and to meet at any upon the call of the chairman of this meeting.

Resolved, That a committee of twenty-four from each supervisor's district be pointed by the chair to present a copy of these resolutions to the brothers and so the late J. P. Matthews, and that the same be published in the Copiah Signal and Crystal Springs Meteor.

Resolved by the citizens of Copiah County in mass meeting assembled, That the ho heretofore worn—and worthily so—by beat No. 2 be, and the same are hereby, awa to beat No. 3. Be it further

Resolved, That this resolution is by no means intended to reflect upon the past present services of beat No. 2, but to show our appreciation of the result of the elec of the ticket in beat No. 3. It is also

Resolved, That the clubs continue their organizations, and consider themselves disbanded, subject to the call of the chairman of the Democratic executive commi

Resolved, That the thanks of this meeting be extended to the Hazelhurst brass b for their services on this occasion.

J. L. MEADE, *Chairma*
JESSE THOMPSON, J
C. J. ALLEN,
Secretari

And whereas it is alleged that the authorities of the State of Mi sippi have utterly failed and neglected to protect and preserve to

of that State the equal enjoyment of civil and political rights,
e in some cases contributed to their overthrow, and have failed
sh or bring to trial persons alleged to be guilty of the conspira-
olence, and homicides above stated, in disregard of the equal
f citizenship in the equal protection of the law guaranteed to
people of that State: Therefore,

ved, That the Committee on Privileges and Elections be, and it
by, instructed to inquire into all the circumstances of, and con-
with, the said alleged events, and into the condition of the Con-
nal rights and securities before named of the people of Virginia
ssissippi, and that it report, by bill or otherwise, as soon as may
l that it have the power to send for persons and papers, and to
ng the sittings of the Senate, and that it may employ a stenogra-
stenographers.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 39.

MEMORIAL

RELATING TO

Inventions and improvements in steamships by Capt. Charles G. Lundberg, formerly of the royal Swedish navy.

JANUARY 24, 1884.—Referred to the Committee on Commerce and ordered to be printed.

To the Congress of the United States:

An effective navy and an adequate merchant marine are national necessities. The present condition of our Navy fills patriotic citizens with alarm and humiliation, while our merchant marine is inadequate to perform 15 per cent. of our ocean carrying trade. It is demonstrated by reliable statistics that the carrying capacity of our merchant marine has decreased in the last decade in about the same proportion that our exports and imports have increased. These startling facts have for some time challenged public attention, and they are now beginning to excite public concern.

While it is not our purpose in this memorial to discuss the causes of the present condition of our Navy and merchant marine, it may be proper, however, to revert briefly to a few facts in explanation of them. First, the diversion of the active capital of the country into enterprises of internal development; second, failure of the Government to encourage and promote, by wise and liberal legislation, the construction and navigation of an efficient and adequate merchant marine, able to compete successfully with foreign nations for the ocean carrying trade; third, the growth of a false economic doctrine, which holds that the carrying trade of the world belongs to the British because they are able to build and navigate steamships a trifle cheaper than the Americans.

The first of these causes operates to prevent the investment of American capital in shipping enterprises. The second tends to divert the energy and intelligence of American citizens from the ocean. The third encourages in our midst a powerful class who systematically antagonize every effort of enterprising citizens to remove the second cause, or to modify the consequences of the first; and the result is that we are practically without a Navy, and our foreign trade and commerce is carried in foreign bottoms. Unless we misinterpret the public opinion of this country, a crisis has been reached, and a change which will effect a remedy for this condition of things is now demanded. The only question is, What shall be the remedy? Before entering upon the solution of this question it may not be considered inappropriate here to refer to the sound advice of some of the early statesmen of the Republic, whose views are pertinent to this subject.

Washington said in his second annual message:

I recommend to your serious reflection how far and in what mode it may be expedient to guard against embarrassments from these contingencies [danger to our

goods carried in foreign ships, by war] by such encouragement to our own navigation as will render our commerce and agriculture less dependent on foreign bottoms, which may fail us in the very moment most interesting to both of these great objects.

Madison said:

If America should have vessels at all, she should have enough for all the purposes intended: to do all her own carrying, to form a school for seamen, laying the foundation of a navy, and to be able to support herself against the interference of foreigners.

Jefferson said:

Our navigation involves still higher considerations. As a branch of industry, it is valuable: but as a resource of defense, essential. The carriage of our own commodities, if once established in another channel, cannot be resumed in the moment we desire. If we lose the seamen and artisans whom it now occupies, we lose the present means of marine defense, and time will be requisite to raise up others, when disgrace or losses shall bring home to our feelings the evils of having abandoned them.

Are the American people ready to heed the sound advice of these eminent statesmen and patriots? In the past, when the carrying trade of the world was performed in wooden ships, the United States held high rank among maritime nations; and the superior inventive talent, mechanical skill, and executive energy of her citizens enabled her to cope with the most powerful nations upon the high seas. It has always been a distinctive feature of American policy, both governmental and social, to encourage invention and promote innovation, and to this fact may be attributed all our triumphs upon land and sea.

From 1816 to 1840 the tonnage and value of our ocean traffic was greater in proportion to population than that of any other nation. During that period of our country's history we built faster ships and sailed them more skillfully than any other nation in the world. In the latter decades of the sailing era, nearly every important improvement in form, lines, structure, and equipment of vessels emanated from the brain of an American, and was utilized by an American shipbuilder.

When steam first came into use as a marine motor, Americans were the pioneers in its application and development. These are simple truisms of history, but they apply only to the era of wooden ships.

Up to 1860 the Americans had perfected the wooden ship. With boundless forests to supply material, with matchless genius to design and with incomparable skill to construct, they led the world, and had not iron and steel so largely superseded wood in shipbuilding, the Americans would no doubt still hold the ascendency on the ocean.

The advent of the iron ship, however, radically altered the condition and the abundant cheap supply of the material entering into its construction, together with the more general adoption of the steam-engine instead of sails, gave to England even greater advantages than had been previously enjoyed by the Americans in the era of the wooden ship. But while the materials of construction and the means of propulsion were undergoing these great changes, the essential conditions of shape and form of the hull remained practically the same. The sole endeavor of the English, in the prosecution of their supremacy upon the ocean, has been to build larger ships and to increase their speed, simply by the application of great engine power, without altering in any essential property their models. If we except the questionable improvement of greatly increasing the proportion of length to breadth, the form of the ship of this period is essentially the same as it was fifty years ago, and, although great improvements have been made in almost every other branch of human pursuits, it would seem that the inventive genius of our age has here come to a stand-still. The invention of your memorialist, to which your attention is respectfully invited, is the first radical deviation, based

upon scientific principles, from the prevailing ship model, and among the principles and advantages claimed for it we specify the following:

1st. The design makes it possible to combine the finest lines for high speed with great carrying capacity.

2d. The form of the aft part of the immersed hull with its submerged stern, which divides the water horizontally, permits, in the highest possible degree, great sharpness astern, or what is called "*a clean run*," which is the indispensable condition for high speed.

3d. The great width of the aft part of the ship's hull, which is a consequence of the submerged horizontal stern, affords ample room for the application of the greatest engine power compatible with the displacement.

4th. The design is eminently adapted for the use of twin screws, as the form of the submerged stern affords a perfect support to the propeller shafts. The great importance of this advantage will especially appear whenever it shall be desired to reach a very high speed, attainable only by a ship carrying engines of such great power that it cannot be economically used upon only one propeller of moderate size, or safely transmitted through one shaft, in which case it becomes necessary to divide the power upon two propellers and adopt twin screws. In a vessel of the ordinary type the propeller shaft must be hung up on brackets extending into the water, outside the ship for a considerable distance, and the difficulty of supporting and protecting shafts of very great weight in such an exposed position will be easily perceived; but this objection is entirely removed by the present design, which permits the propeller shafts to be carried all the way inside and supported firmly within the ship's hull.

5th. The propellers act constantly in solid water undisturbed by the proximity of the stern-post, rudder, and the overhanging part of the stern, as in ships of the usual model. This must cause an economy of power or a corresponding increase of speed.

6th. A vessel of this form will not roll or pitch as much as vessels of the common type, because the body of water over the projecting part of the hull will offer considerable resistance to such motion. Less pitching will also in a great measure tend to prevent "racing" by the propellers partly lifting out of the water; and this greater steadiness of the ship during its progress through the water must economize power or add to the speed.

7th. The rudder (or rudders, if two are used) may be made lighter, and have considerably less area than in ships of the ordinary kind, because the stern of the vessel, on account of its form, offers less resistance to lateral motion, thus requiring less power to swing or move it sideways. The resistance to the vessel's progress due to the rudder being proportionate to its surface, it follows also that the diminished area must lessen the resistance and tend to increase the speed.

8th. Owing to the increasing width of the hull below the load water-line, the ship will stand upright, and may be moved about, or go to sea without ballast. Indeed, the more the vessel is lightened the greater becomes the stability, because the meta center rises with the greater beam much more rapidly than the center of gravity, and the same will also, on account of the expanding side above water, take place if the ship should be loaded deeper than to the assumed load water-line. The great advantage of this property inherent to the design becomes evident from the known fact that most large ocean steamers must carry a considerable quantity of permanent ballast, the lost freight on which causes corresponding diminution of the earnings.

9th. The use of two propellers, having their shafts effectually su ported and protected within the ship's hull, must add greatly to tl security against accidents at sea, such as might disable a vessel wi only one propeller, or where the propeller shafts, as usual with tw screws, run outside of the ship.

10th. The arched form of the hull, with the projecting sides bel water, and the general absence of any plane surface exposed to the s admits of very great strength of construction, and with judicious a plication of water-tight compartments such a vessel may be made e ceedingly strong, offering the best possible security against the violen of the sea and the perils of collision.

This invention is a bold step forward, but in strict conformity wi and adherence to the scientific principles of naval architecture, and is covered by letters-patent in this country and in Europe. It has be examined by leading shipbuilders in this country, who approve a commend it, as appears from their testimonials hereto attached. (S appendix.) May it not, therefore, be assumed that if this inventi possesses the merit conceded for it by the eminent shipbuilders w have examined and approved it, that its development and applicati by the United States Government will be the surest and most spee means of laying a reliable foundation for an effective navy, and fo merchant marine adequate to the demands of our ocean carrying tra in the transportation of American mails, passengers, and products, whi are now carried in foreign bottoms, and for which the American peo pay annually to foreign ship-owners over $140,000,000?

We respectfully submit this important invention to your most fav able consideration, for such action as may seem to be wise and expe ent, in the hope that it may be the means of speedily restoring t United States to her former position of power and prestige upon t high seas.

Very respectfully,

CHARLES G. LUNDBORG,
Inventor and Naval Architect

APPENDIX.

TESTIMONIALS OF PERSONS WHO HAVE EXAMINED THE INVENTION AND THE SCI TIFIC PRINCIPLES UPON WHICH IT IS BASED.

WASHINGTON, D. C., *October* 24, 188

DEAR SIR: I beg to express my congratulations in relation to the probable est lishment of a line of transatlantic steamers built on your designs.

Your letters from the most eminent shipbuilders and experts in our country tend confirm me in my ideas formed last winter, when you kindly showed me your eleme of design, model, and drawings, that vessels built in accordance therewith, furnis with the usual power for the displacement, will have great speed with increased ca ing capacity, and great steadiness in heavy weather. Having made a study strength in naval construction, I feel warranted in saying that with the same thi ness of material, riveting, &c., your vessels will prove unusually strong.

Very respectfully, yours,

DANIEL AMMEN,
Rear-Admiral, United States Nav

Capt. C. G. LUNDBORG,
Late of the Royal Swedish Navy.

W. H. WEBB, 64 CEDAR STREET,
New York, October 31, 188

DEAR SIR: Having examined the model presented by you this day, and which *have designed for* the Atlantic merchant service, I find so much in accord with

own experience and practice of former years that I do not hesitate to give it my approval.

It possesses many important advantages over the generally accepted models of ocean steamers. Its general dimensions will secure very light draught, and with fine lines, as shown in the model, and adequate power, great speed can certainly be obtained.

Also, greater stability when light; less disposition to roll at sea when loaded; greater certainty of answering the helm quickly; large carrying capacity on a light draught; greater safety and comfort at sea.

It would be a satisfaction to me to see your views embodied in a large ocean steamer, and put in practical operation, that it might be shown and *proved* that the accepted models of the day are far from right and the best.

Yours, very respectfully,

W. H. WEBB.

Capt. C. G. LUNDBORG,
Naval Constructor.

MORGAN IRON WORKS, FOOT NINTH STREET, E. R.,
JOHN ROACH & SONS, PROPRIETORS,
New York, September 18, 1882.

DEAR SIRS: I have examined the model and specifications of Capt. C. G. Lundborg's plans for Atlantic express steamships, and I consider them just what is requisite for transatlantic steamers of greater speed, greater safety, and greater comfort to passengers than has hitherto been given to the traveling public.

Yours, respectfully,

EDWARD FARRON,
Engineer and Constructor to John Roach & Sons.

Messrs. CHAS. L. WRIGHT & Co.,
51 *Broadway.*

C. & R. POILLON, SHIPBUILDERS, &C., 224 SOUTH STREET,
New York, October 30, 1882.

GENTLEMEN: Having examined the drawings and calculations of Capt. C. G. Lundborg's model of steamship for the Atlantic service, we would state that we can see no objection to anything he claims, and in our judgment his model possesses several important advantages over the common form of steamships now in use, combining fine lines for speed, great stability, and light draught.

The advantantage of two propellers, acting always in solid water, is very important to obtain a high rate of speed, also as a means of safety in case of accident to the machinery. The form of model gives great stability when light, avoiding the necessity of using ballast, thus saving cargo space, trouble, and expense.

In our judgment, Captain Lundborg's plans and specifications possess all the advantages claimed by him, as they contain all the elements of success for the Atlantic service, viz, speed, safety, comfort, large carrying capacity, and light draught.

Yours truly,

C. & R. POILLON

Messrs. CHAS. L. WRIGHT & Co.

ROOMS OF BOARD OF TRADE OF SAN FRANCISCO,
No. 202 MARKET STREET,
San Francisco, September 20, 1882.

MY DEAR SIR: It is now over a year since I first examined your plans and specifications for steamships on your plan, and while at Washington, six months since, I also examined your model. Consequently I may consider myself fairly acquainted with your views in this connection, and I have no hesitation in asserting that in all essential points your model for ocean steamers possesses many important advantages. *Increased buoyancy*, or, otherwise expressed, *increased carrying capacity on a lighter draught; stability and steadiness in a seaway; greatly increased speed, and consequent economy in fuel*—these very important points are justly claimed for your model, and these control the question of success in ocean steamships.

I trust that your valuable invention may be first introduced under American colors, and I have no doubt of its complete success if applied to properly constructed steamships.

With much respect, I beg to remain, sir, your obedient servant,

WILLIAM L. MERRY,
Vice-President San Francisco Board of Trade.

Capt. C. G. LUNDBORG, *Washington, D. C.*

[illegible]
[illegible]

[illegible] I have to apologize for not writing you sooner, but my time is so occupied in superintending the building and fitting out of the new steamships [illegible] at Greenpoint, Long Island, that I hope [illegible]

[illegible] I had intended examining and fully investigating and considering [illegible] but my time is so fully occupied [illegible] that I am unable to go into [illegible] I think it unnecessary to go into any details of [illegible] I am satisfied as you know better than I can tell you, the results [illegible] and have hitherto [illegible] and I now add my testimony to [illegible] in the power of action, manipulation and the evenness of [illegible]

[illegible] I am yours truly,

J. M. LACHL

[illegible]

New York, October 20, 1

[illegible] The [illegible] of an ocean steamship made by Capt. C. G. Lund [illegible] a [illegible] examination and analysis of its principal features, i[illegible] and the capacity of the hull for the introd[illegible] than is now afloat. We entertai[illegible] must prove faster, and at the same [illegible] any other vessel of similar dimensions or ca[illegible] and propelled by a single screw propeller [illegible]

[illegible] and detail his plans are in the highest degree practical, [illegible] well-known principles of steam naval architecture.

[illegible] that the maximum efficiency of the single-screw prop[illegible] already reached in sea-going steamers. More propelling powe[illegible] can be achieved only by the use of twin screws, and this f[illegible] plan makes its superiority obvious to us.

[illegible], respectfully, yours,

NATHANIEL McKAY,
CORNELIUS W. McKAY,
Naval Archit

Messrs. CHARLES L. WRIGHT & Co., New York.

C

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 40.

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING

A copy of the report of the Third Auditor of the Treasury upon the bill (S. 809) to indemnify the State of California for balances paid and remaining due on account of indebtedness incurred in the Indian wars.

JANUARY 25, 1884.—Reported by Mr. Maxey from the Committee on Military Affairs, ordered to be printed, and recommitted.

WAR DEPARTMENT,
Washington City, January 24, 1884.

SIR: Referring to so much of your communication of December 22, 1883, as requests information upon the subject of Senate bill No. 809, "to indemnify the State of California for balances paid and remaining due on account of indebtedness incurred in the Indian wars," &c., I have the honor, in reply, to forward copy of the report of the Third Auditor of the Treasury, dated the 22d instant, upon the bill, which it is hoped will afford the information desired.

A similar bill having been introduced in the House of Representatives, and the subject being one of considerable importance, I beg to request that the letter of the Auditor may be printed.

Very respectfully, your obedient servant,

ROBERT T. LINCOLN,
Secretary of War.

HON. S. B. MAXEY,
Of Committee on Military Affairs, United States Senate.

TREASURY DEPARTMENT,
THIRD AUDITOR'S OFFICE,
Washington, D. C., January 22, 1884.

SIR: I have the honor to return * * * "A bill to indemnify the State of California * * *," and the other papers referred to me by your direction.

Notwithstanding the recitals in the bill, I am unable to perceive that any part of the appropriation was due to the *State*, or that the non-payment of the small balance of the appropriation was caused by "delays occasioned by War Department rulings." On the contrary, the facts would seem to be that the small unpaid balance belonged exclusively to the *holders of the yet outstanding California bonds*, and that the

sole reason for the non-payment was the failure by a few of such holders to come forward and present their bonds for payment.

A brief history of the legislation by Congress is as follows:

The *original* act, August 5, 1854 (10 Stat., 582–583), directed the Secretary of War to examine and ascertain the "amount of expense incurred and now actually paid" by the State in the suppression of Indian hostilities within the State prior to January 1, 1854, and to pay the amount so ascertained *into the State treasury*, but not to exceed $924,259.65.

But, as shown by correspondence, the State officials determined not to present its claim as the law stood; and by act of August 18, 1856, Sec. 8 (11 Stat., 91), the law was changed to provide that the appropriation should be used to pay the *holders of the war bonds* which the State had issued on account of such expenses.

An amendment was made by act of June 23, 1860 (12 Stat., 104), but it was of minor importance, and need not be now set out.

The holders of the great bulk of the bonds presented them within a short time, and received payment.

A period of more than three years then elapsing without further calls, the appropriation became by law "lapsed," and the unexpended balance, $10,188.65, was therefore carried into the surplus fund.

Subsequently a few bonds, aggregating not over $2,500, were presented to this office, but were returned, there being no fund for payment; and on March 22, 1866, the Third Auditor recommended to the Secretary of War to ask Congress to reappropriate said balance of $10,188.65.

By act of July 25, 1868 (15 Stat., 175) a balance of $10,183.65 ($5 short) was reappropriated. Only one person, James Steele, presented any bond, and he was paid $538.11. Again the appropriation "lapsed" by want of calls upon it for a period of three years; and on July 1, 1874, the balance, $9,645.52, was carried into the surplus fund.

By act of March 3, 1881 (21 Stat., pages 510, 511), a sufficient amount of the unexpended balance was reappropriated to pay the principal, with interest to July 1, 1860, of four bonds described by denomination and serial numbers; and payment was accordingly made to the owner, Frances D. Bingham, in the sum of $1,288.36, leaving the balance now in the surplus fund, $8,357.16.

I do not know why Congress allowed interest to July 1, 1860, on Mrs. Bingham's bonds. On the others interest was allowed to January 1, 1854; as the appropriation, so I understand, would suffice for no more, having been based upon the showing made by the State of the expense incurred by it up to *that date*.

I fail to perceive that the *State* had any right in the unexpended balance.

Very respectfully,

A. M. GANGEWER.
Acting Auditor.

Hon. ROBERT T. LINCOLN,
Secretary of War.

[Forty-eighth Congress, first session.]

S. 809.

IN THE SENATE OF THE UNITED STATES,
December 19, 1883.

Mr. MILLER, of California, asked and, by unanimous consent, obtained leave to bring in the following bill; which was read twice and referred to the Committee on Military Affairs.

A bill to indemnify the State of California for balances paid and remaining due on account of indebtedness incurred in the Indian wars, for the payment of which said State issued bonds in eighteen hundred and fifty-one and eighteen hundred and fifty-two, a part of which remain unpaid owing to delays occasioned by War Department rulings under the act of Congress of August fifth, eighteen hundred and fifty-four.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Treasury be, and he is hereby, authorized and directed to pay to the State of California, or her duly authorized agents, any sum found due, upon investigation, for balances alleged to have been paid and remaining due and to be paid by said State on account of Indian war bonds issued by said State under the acts of the legislature of eighteen hundred and fifty-one and eighteen hundred and fifty-two, in the suppression of Indian hostilities within the said State prior to the first of January, eighteen hundred and fifty-four, and recognized by the act of Congress of August fifth, eighteen hundred and fifty-four: *Provided*, That the sum so paid shall not exceed in amount the sum of two hundred and fifty thousand dollars, which amount is hereby appropriated, out of any money in the Treasury not otherwise appropriated, and to be settled upon proper vouchers to be filed and passed upon by the proper accounting officers of the Treasury Department.

C

48TH CONGRESS, 1st Session. } SENATE. { MIS. DOC. No. 41.

IN THE SENATE OF THE UNITED STATES.

JANUARY 29, 1884.—Ordered to lie on the table and be printed.

Mr. PLATT submitted the following

RESOLUTION:

Resolved, That the Committee on Post-Offices and Post-Roads are hereby instructed to inquire whether the cost of telegraphic correspondence between the several States and Territories of the United States, or with foreign countries, has been injuriously affected by large stock dividends made by the Western Union Telegraph Company, by consolidations between different telegraph companies, by working contracts with cable or other companies, by the leasing of connecting or competing lines, or by other means.

Resolved, That said committee further inquire whether the Western Union Telegraph Company directly, or through the Gold and Stock Telegraph Company, or any other company or association, have prescribed rules or regulations for the transmitting of press news, or made differential rates whereby discriminations are made restricting the free and independent use of the telegraph by the press.

Resolved, That said committee be empowered to send for persons and papers, employ a stenographer, and report by bill or otherwise, and in print.

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 42.

LETTER

FROM

THE COMMISSIONER OF PENSIONS,

TRANSMITTING

A list of all widows of officers of high rank, Army or Navy, whose pensions have been fixed, or increased by special acts of Congress.

JANUARY 29, 1884.—Ordered to be printed.

DEPARTMENT OF THE INTERIOR,
PENSION OFFICE,
Washington, D. C., January 21, 1884.

SIR: I have the honor to acknowledge the receipt of the letter of the 15th instant from the clerk of your committee, calling for a list of all widows of officers of high rank, Army and Navy, whose pensions have been fixed, or increased by special acts above the maximum amount allowed by the general law.

Anticipating somewhat other information you would find of use in connection with what is specified in your request, I submit herewith a list, giving fuller details, showing:

First. The widows and dependents of general officers of the Army who have been granted a pension of $50 per month and more, and those whose pensions have been increased in excess of the rates allowed by the general law ($30) by special acts of Congress. In this class will be found a few where Congress granted the pension with the rank of a general officer, when the pension allowed under the general law had been of less grade.

Second. The widows of late Presidents of the United States.

Third. The widows and dependents of general officers who have been granted a pension under the provisions of the general laws ($30 per month), and have failed to receive any increase by special acts as those mentioned in the first paragraph.

Fourth. The widows and dependents of general officers who have been granted a pension by special acts, at the same rate and less than that provided by the general law (three cases).

Fifth. The widows and others of officers of the Navy who are in receipt of a pension of $50 per month, or more, under the provisions of special acts of Congress.

I am, sir, very respectfully,

W. W. DUDLEY,
Commissioner of Pensions.

HON. JOHN I. MITCHELL,
Chairman of Committee on Pensions, United States Senate.

Pensions granted by special acts of Congress, at the rate of fifty dollars per month, to widows, or other dependents, of general officers since 1861. Twenty-nine in all.

PLEASANT A. HACKLEMAN, brigadier-general:

Died October 3, 1862, from wounds received in action. Widow pensioned at the r of $30 per month from date of death under the general law. Increased to $50 month from date of death by a special act. Certificate No. 761.

ISRAEL B. RICHARDSON, major-general:

Died in service November 3, 1862. The widow was pensioned at the rate of $30 month from date of death under the general law. Increased to $50 per month fr date of death by a special act. Certificate No. 904.

W. H. L. WALLACE, brigadier-general:

Killed in action April 10, 1862. Widow pensioned at the rate of $30 per month fr date of death under the general law. Increased to $50 per month from date of de by a special act. Certificate No. 1248.

JOSEPH B. PLUMMER, brigadier-general:

Died in service August 9, 1862. Widow pensioned at the rate of $50 per mo from date of death by a special act. Certificate No. 1253.

ISAAC I. STEVENS, brigadier-general:

Killed in action September 1, 1862. The widow was pensioned at the rate of per month from the date of death by a special act. Certificate No. 2169.

EDWARD D. BAKER, major-general:

Killed in action October 21, 1861. The widow pensioned at the rate of $30 per mo from date of death under the general law. Increased to $50 per month from dat death by a special act. Certificate No. 10265.

A. W. WHIPPLE, major-general:

Killed in action May 7, 1863. The widow pensioned at the rate of $30 per mo from date of death under the general law. Increased to $50 per month from dat death by a special act. Certificate No. 16035.

EDWIN V. SUMNER, major-general:

Died in the service March 21, 1863. The widow pensioned from date of death at rate of $30 per month under the general law. Increased to $50 per month from gust 14, 1876, by a special act. Certificate No. 37248.

DANIEL B. BIDWELL, brigadier-general:

Killed in action October 19, 1864. The widow pensioned at the rate of $30 per mo from date of death under the general law. Increased to $50 per month from dat death by a special act. Certificate No. 68180.

WILLIAM W. MORRIS, major-general:

Died in service December 11, 1865. The widow pensioned at the rate of $30 month from date of death under the general law. Increased to $50 per month fr March 3, 1873, by special act. Certificate No. 71303.

HIRAM G. BERRY, major-general:

Killed in action May 3, 1863. Widow pensioned at the rate of $50 per month fr date of death by a special act. Certificate No. 88618.

CHARLES S. LOVELL, brigadier-general:

Died January 3, 1871, while on the retired list. Widow pensioned at the rate of per month, as the widow of a colonel, under the general law. Increased to $50 month from June 19, 1878, as the widow of a brigadier-general, by a special act. (tificate No. 152616.

ROBERT ANDERSON, brigadier-general:

Died October 27, 1871, in service. Widow pensioned at the rate of $25 per mo as the widow of a major. Increased to $50 per month from February 7, 1879, as widow of a brigadier-general, by a special act. Certificate No. 158685.

ALEXANDER B. DYER, brigadier-general:

Died in the service May 20, 1874. The widow pensioned at the rate of $30 per mo from date of death under the general law. Increased to $50 per month from Ma 25, 1876, by a special act. Certificate No. 165711.

JAMES B. MCPHERSON, major-general:

Killed in action July 22, 1864. The mother was pensioned at the rate of $50 per month from April 7, 1874, by a special act. Certificate No. 165856.

E. R. S. CANBY, brigadier-general:

Killed in service April 11, 1873. Widow pensioned at the rate of $30 per month from date of death. Increased to $50 per month from June 4, 1874, by special act.

LORENZO THOMAS, brigadier-general:

Died in service March 2, 1875. Widow pensioned at the rate of $50 per month from April 13, 1876, by a special act. Certificate No. 173339.

JAMES SHIELDS, brigadier-general:

Died June 1, 1879, while out of service. Widow pensioned at the rate of $100 per month from date of death by a special act. Certificate No. 186359.

SAMUEL P. HEINTZELMAN, major-general:

Died May 1, 1880, while in the service. Widow pensioned at the rate of $50 per month from December 23, 1880, by a special act. Certificate No. 192257.

CLEMENT A. FINLEY, brigadier-general and Surgeon-General:

Died September 8, 1879, in service. Widow pensioned at the rate of $50 per month from April 25, 1882, by a special act. Certificate No. 7558.

ROBERT B. MITCHELL, brigadier-general:

Died January 26, 1882, while out of service. Widow pensioned at the rate of $50 per month from June 27, 1882, by a special act. Certificate no 196683.

SILAS CASEY, brigadier-general:

Died January 22, 1882, while in service. Widow pensioned at the rate of $50 per month from July 15, 1882, by a special act. Certificate No. 198243.

ZACHARY TAYLOR, lieutenant-colonel, U. S. A.:

The daughter pensioned at the rate of $50 per month by special act. No. 7571.

LOVELL H. ROUSSEAU, brigadier-general:

Died January 17, 1869, in service. Widow pensioned from that date at the rate of $30 per month. Increased to $50 per month from April 13, 1876, by special act. Certificate No. 126625.

GEORGE A. CUSTER, major-general:

Killed in action June 25, 1876. Widow pensioned from that date at the rate of $30 per month, with rank as that of a lieutenant-colonel. Increased to $50 per month from July 31, 1882, by a special act. Certificate No. 178408.

WILLIAM H. FRENCH, brevet major-general:

Died May 20, 1881, in service. Widow pensioned at the rate of $50 per month from August 5, 1882, by special act. No. 197269.

GEORGE D. RAMSAY, brigadier-general:

Died May 23, 1882, in service. Widow pensioned at the rate of $50 per month from August 8, 1882, by special act. No. 197138.

GOUVERNEUR K. WARREN, major-general:

Died August 8, 1882, in service. Widow pensioned at the rate of $50 per month from March 2, 1883, by special act. No. 199602.

*ALFRED B. MEACHAM, chairman of peace commission to Modoc Indians. Died February 16, 1882. Widow pensioned at the rate of $50 per month from March 2, 1883, by special act. No. 201713.

Pensions granted by special acts to the widows of Presidents of the United States.

ABRAHAM LINCOLN:

Assassinated while in office, April 14, 1865. His widow granted a pension from July 14, 1870, at the rate of $3,000 per annum by a special act. It was increased to $5,000 per annum from February 2, 1882. No. 146718.

JAMES K. POLK:

Died out of office. Widow pensioned at $5,000 per annum from September 19, 1881. No. 195476.

* Exceptional to class.

JOHN TYLER:

Died out of office. Widow first pensioned at $100 per month (for service in war 1812) from December 23, 1850, then at $5,000 per annum, in lieu of former, from September 19, 1881. No. 101007.

JAMES A. GARFIELD:

Assassinated while in office, July 2, and died September 19, 1881. Widow pensioned at the rate of $5,000 per annum.

Names of the widows, or other dependents, of general officers, who have been granted a pension at the rate of thirty dollars per month under the provisions of the general pension laws, and in whose behalf no special acts have been passed increasing the rates. In all, 43.

W. H. KEIM, brigadier-general:

Died while in service May 18, 1862, of disease. Widow pensioned from that date at the rate of $30 per month under the general law. No. 348.

JESSE L. RENO, major-general:

Killed in action September 1, 1862. The widow pensioned from that date at the rate of $30 per month under provisions of the general law. No. 370.

ISAAC P. RODMAN, brigadier-general:

Killed in action September 30, 1862. The widow pensioned at the rate of $30 per month from that date under the general law. No. 533.

FREDERICK W. LANDER, brigadier-general:

Died in service March 2, 1862. Widow pensioned from that date at the rate of $30 per month under the provisions of the general law. No. 785.

WILLIAM R. TERRILL, brigadier-general:

Killed in action October 8, 1862. Widow pensioned from that date at the rate of $30 per month under the provisions of the general law. No. 818.

THOMAS WILLIAMS, brigadier-general:

Killed in action August 5, 1862. Widow pensioned from that date at the rate of $30 per month under the provisions of the general law. No. 2039.

C. F. JACKSON, brigadier-general:

Killed in action December 13, 1862. The widow pensioned from that date at the rate of $30 per month under the provisions of the general law. No. 3292.

HENRY BOHLEN, brigadier-general:

Killed in action August 29, 1862. Widow pensioned from that date at the rate of $30 per month under the provisions of the general law. No. 3933.

JAMES COOPER, brigadier-general:

Died in service March 28, 1863. Widow pensioned from that date at the rate of $30 per month under the provisions of the general law. No. 4736.

JOSEPH K. F. MANSFIELD, major-general:

Killed in action September 17, 1862. Widow pensioned from that date at the rate of $30 per month under provisions of the general law. No. 13727.

THOMAS WELSH, brigadier-general:

Died in service August 14, 1863. Widow pensioned from that date at the rate of $30 per month under the provisions of the general law. No. 12444.

S. G. CHAMPLIN, brigadier-general:

Died [illegible] of wounds received in action. Widow pensioned from that date at the rate of $30 per month under the general law. No. 2366.

JOHN [illegible], major-general:

Died [illegible] from wounds received in action. Widow pensioned from that date at the rate of $30 per month under the general law. No. 2364.

[illegible] brigadier-general:

[illegible] Widow pensioned from that date at the rate of $30 per month under the provisions of the general law. No. [illegible]

[illegible] brigadier-general:

[illegible] Widow pensioned from that date at the rate of $30 per month under the general law. No. 2365.

JAMES S. JACKSON, brigadier-general:

Died October 8, 1862, from wounds received in action. Widow pensioned from that date at the rate of $30 per month under the general law. No. 41052.

JOSEPH P. TAYLOR, brigadier-general:

Died in service June 29, 1864. Widow pensioned from that date at the rate of $30 per month under the provisions of the general law. No. 43774.

SAMUEL A. RICE, brigadier-general:

Died July 6, 1864, from wounds received in action. Widow pensioned from that date at the rate of $30 per month under the general law. No. 45378.

GEORGE C. STRONG, major-general:

Died July 30, 1863, from wounds received in action. Widow pensioned from that date at the rate of $30 per month under the general law. No. 49289.

MICHAEL CORCORAN, brigadier-general:

Died in service December 22, 1863. Widow pensioned from that date, under the general law, at $30. No. 50379.

DANIEL P. WOODBURY, brigadier-general:

Died in service August 15, 1864. Widow pensioned from that date at the rate of $30 per month, under the provisions of the general law. No. 56787.

ALEXANDER SCHIMMELFENNIG, brigadier-general:

Died in service September 7, 1865. Widow pensioned from that date at the rate of $30 per month under the provisions of the general law. No. 61489.

DAVID B. BIRNEY, major-general:

Died in service October 18, 1864. Widow pensioned from that date at the rate of $30 per month under the provisions of the general law. No. 71972.

MARCELLUS M. CROCKER, brigadier-general:

Died in service August 26, 1865. Widow pensioned from that date at the rate of $30 per month under the provisions of the general law. No. 74057.

GEORGE D. BAYARD, brigadier-general:

Died December 15, 1862, from wounds received in action. Widow pensioned from that date at the rate of $30 per month under the general law. No. 79251.

THOMAS A. SMYTH, brigadier-general:

Died April the 9, 1865, from wounds received in action. Widow pensioned from that date at the rate of $30 per month under the general law. No. 80648.

DAVID A. RUSSELL, brigadier-general:

Killed in action September 19, 1864. The widow pensioned from that date at the rate of $30 per month under the provisions of the general law. No. 83830.

JAMES C. RICE, brigadier-general:

Killed in action May 10, 1864. Widow pensioned from that date at the rate of $30 per month under the provisions of the general law. No. 84503.

LEWIS BLENKER, brigadier-general:

Died October 31, 1863, in service. Widow pensioned from that date at the rate of $30 per month under the provisions of the general law. No. 96515.

CHARLES F. SMITH, major-general:

Died in service April 26, 1862. The minor child pensioned from May 27, 1866, the date of the widow's death, at the rate of $30 per month under the provisions of the general law. No. 99388.

STEPHEN H. WARD, brigadier-general:

Killed in action July 2, 1863. Mother pensioned from that date at the rate of $30 per month under the provisions of the general law. No. 109522.

DANIEL MCCOOK, brigadier-general:

Died July 17, 1864, from wounds received in action. Minor child pensioned from October 25, 1867, date of widow's remarriage, at the rate of $30 per month under the provisions of the general law. No. 109469.

CHARLES R. LOWELL, brigadier-general:

Died October 20, 1864, from wounds received in action. Widow pensioned from that date at the rate of $30 per month under the general law. No. 120052.

PHILIP KEARNEY, major-general:

Killed in action September 1, 1862. The widow pensioned from that date at the rate of $30 per month under the general law. Her pension terminated April 22, 1869, by reason of remarriage, and the minor children were pensioned from that date at the same rate. No. 147057.

THOMAS J. MCKEAN, brigadier-general:

Died April 19, 1870, after service. Widow pensioned from that date at the rate of $30 per month under the provisions of the general law. No. 148235.

LAFAYETTE C. BAKER, brigadier-general:

Died July 3, 1868, after service. Widow pensioned from that date at the rate of $30 per month under the provisions of the general law. No. 150246.

LEWIS G. ARNOLD, brigadier-general:

Died September 23, 1871, in service. The widow pensioned from that date at the rate of $30 per month under the provisions of the general law. No. 154239.

JAMES BARNES, brigadier-general:

Died February 13, 1869, after service. The widow pensioned from that date at the rate of $30 per month under the provisions of the general law. No. 157973.

JOHN A. RAWLINS, brigadier-general:

Died September 6, 1869, after service. The widow was pensioned under the general law from that date at the rate of $30 per month, but died without receiving the same, and the minor children were then pensioned from the same date, and at the same rate. No. 167018.

FRANK P. BLAIR, major-general:

Died July 8, 1875, after service. Widow was pensioned from that date at the rate of $30 per month under the provisions of the general law. Congress, by special act dated March 3, 1877, directed that the name of the widow be placed upon the rolls, but failed to specify any rate of pension, consequently no increase was allowed. No. 172389.

WILLIAM F. BARTLETT, brigadier-general:

Died December 7, 1876, after service. Widow pensioned from that date at the rate of $30 per month under the provisions of the general law. No. 180547.

JOHN P. CRESTON, brigadier-general:

Died April 10, 1874, after service. Widow pensioned from that date at the rate of $30 per month under the provisions of the general law. No. 183095.

GEORGE H. THOMAS, major-general:

Died March 28, 1870, in service. Widow pensioned from that date at the rate of $30 per month under the provisions of the general law. No. 183843.

The following cases are exceptional from the classes enumerated:

H. W. WESSELLS, major-general:

Died in office 20 [illegible], in service. His widow Jane C. Wessells was pensioned from March 3, [illegible], at the rate of $50 per month, by a special act of Congress. No. 132144.

ANNE E. DYKERS, brigadier-general:

Died [illegible], 1877. Widow was pensioned at the rate of $30 per month from [illegible], 1878, by a special act of Congress. No. [illegible].

JACOB A. WESTERVELT, brigadier-general:

Died December 19, 1865, after service. Widow pensioned at the rate of $30 per month from May 14, 1878, by a special act of Congress.

[illegible] widow of officer in the Navy or Marine Corps may in certain cases receive a pension at the rate of fifty dollars per month under the provisions of special acts of Congress. Twenty-six in all.

DIANA D. MACKENZIE, widow:

Died a pensioner at the rate of $500 per annum by special act approved May 25, 1878.

WILLIAM M. WOOD, widow of Surgeon-General:

Special act approved June 27, 1882.

WILLIAM REYNOLDS, widow of Rear-Admiral:
Special act approved June 16, 1882.

HENRY K. HOFF, widow of Rear-Admiral:
Special act approved May 17, 1882.

HENRY H. BELL, widow of Rear-Admiral:
Special act approved June 17, 1877.

CHARLES H. DAVIS, widow of Rear-Admiral:
Special act approved June 10, 1880.

JOHN A. WINSLOW, widow of Rear-Admiral:
Special act approved March 3, 1877.

JAMES L. LARDNER, widow of Rear-Admiral:
Special act approved July 15, 1882.

HIRAM PAULDING, widow of Rear-Admiral:
Special act approved February 21, 1881.

JOHN RODGERS, widow of Rear-Admiral:
Special act approved August 5, 1882.

JAMES H. SPOTTS, widow of Rear-Admiral:
Special act approved August 5, 1882.

LOUIS M. GOULDSBOROUGH, widow of Rear-Admiral:
Special act approved March 16, 1882.

JOHN GALLAGHER, widow of Captain:
Special act approved March 3, 1879. This reinstated the pensioner on the roll at $50 per month, to which she is entitled under the general law, act of August 11, 1848.

JAMES H. FRAILEY, widow of Commodore:
Special act approved February 7, 1879.

CHARLES S. MCCAULEY, widow of Commodore:
Special act approved February 23, 1881.

ISAAC MCKEEVER, widow of Commodore:
Special act approved March 3, 1879.

JOHN GUEST, widow of Commodore:
Special act approved March 3, 1881.

JOHN HARRIS, widow of Colonel, U. S. M. C.:
Special act approved March 3, 1879.

WILLIAM DULANEY, widow of Colonel, U. S. M. C.:
Special act approved April 25, 1882.

LEVI TWIGGS, widow of Major, U. S. M. C.:
Special act approved June 10, 1882, from $25 per month to $50.

FREDERICK COLLINS, widow of Lieutenant:
Special act approved July 22, 1882, increased the rate from $25 to $40 per month.

In this class it is not stated whether the present rate is the original allowance or increase, except where the rank is less than the relative rank of a general officer in the Army.

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 43.

IN THE SENATE OF THE UNITED STATES.

FEBRUARY 4, 1884.—Ordered to lie on the table and be printed.

Mr. MORGAN submitted the following

RESOLUTION:

Resolved, That the Attorney-General be directed to send to the Senate copies of the correspondence between the Department of Justice and the Department of the Interior concerning the case of Johnson Foster, a Creek Indian, who was accused of the unlawful killing of Robert Poisal, an Arapahoe Indian, in the Indian Territory, in September, 1882; and a copy of any opinion of the Attorney-General given in that case, relating to the jurisdiction of the courts of the United States over such crimes committed by one Indian against another Indian within the Indian Territory.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 44.

IN THE SENATE OF THE UNITED STATES.

FEBRUARY 4, 1884.—Ordered to lie on the table and be printed.

Mr. BUTLER submitted the following

RESOLUTION:

Resolved, That the Secretary of the Treasury be and he is hereby directed to forward to the Senate the testimony taken by a committee of the Treasury Department during the last summer, and the report of said committee touching the administration of the Supervising Architect's office by Supervising Architect Hill. And that the Secretary of the Treasury communicate to the Senate under and by virtue of what provision of law the Supervising Architect is appointed, and the scope and extent of his powers under such appointment; whether he executes an official bond, and whether he disburses public money in virtue of his appointment as Supervising Architect, and, if so, from which appropriation and for what purpose.

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 45.

IN THE SENATE OF THE UNITED STATES.

FEBRUARY 5, 1884.—Ordered to be printed.

Mr. BUTLER submitted the following

RESOLUTION:

Resolved, That the President be requested, if in his judgment not incompatible with the public interest, to communicate to the Senate the record of the proceedings, testimony, and findings of the court of inquiry in relation to the events connected with the loss of the steamer Proteus in the Arctic Ocean.

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 46.

IN THE SENATE OF THE UNITED STATES.

FEBRUARY 5, 1884.—Ordered to be printed.

Mr. MORGAN, from the Committee on Foreign Relations, submitted the following

RESOLUTION:

Resolved by the Senate, That the President of the United States be requested to bring to the attention of the Emperor of Brazil the claim of Helen M. Fiedler, executrix of Ernest Fiedler, deceased, against the Government of Brazil, growing out of a contract alleged by said claimant to be obligatory on that Government, for the hire of the ship Circassian to transport emigrants from the United States to Brazil in the year 1867, with a view to ask said Government to consider the said claim, and to provide for the allowance and payment of such sum as shall be found just to such claimant.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 47.

LIST OF COMMITTEES

OF

THE SENATE OF THE UNITED STATES

FOR THE

FIRST SESSION OF THE FORTY-EIGHTH CONGRESS.

FEBRUARY 5, 1884.

STANDING COMMITTEES.

On Agriculture and Forestry.

Mr. Miller, of New York, chairman.
Blair.
Plumb.
Van Wyck.
Sawyer.
George.
Williams.
Fair.
Gibson.

On Appropriations.

Mr. Allison, chairman.
Logan.
Dawes.
Plumb.
Hale.
Beck.
Ransom.
Cockrell.
Call.

To Audit and Control the Contingent Expenses of the Senate.

Mr. Jones, of Nevada, chairman.
Platt.
Vance.

On Civil Service and Retrenchment.

Mr. Hawley, chairman.
Dawes.
Mitchell.
Miller, of California.
Pike.
Walker.
Williams.
Lamar.
McPherson.

On Claims.

Mr. Cameron, of Wis., chairman.
Hoar.
Pike.
Dolph.
Manderson.
Jackson.
George.
Fair.
Kenna.

On Commerce.

Mr. McMillan, chairman.
Jones, of Nevada.
Conger.
Frye.
Miller, of New York.
Dolph.
Ransom.
Coke.
Slater.
Vest.
Gorman.

On the District of Columbia.

Mr. Ingalls, chairman.
Aldrich.
Riddleberger.
Pike.
Palmer.
Harris.
Vance.
Gorman.
Brown.

On Education and Labor.

Mr. Blair, chairman.
Mahone.
Miller, of New York.
Aldrich.
Bowen.
George.
Call.
Pugh.
Groome.

On Engrossed Bills.

Mr. Saulsbury, chairman.
Call.
Allison.

*On Enrolled Bills.**

Mr. Sewell, chairman.
Riddleberger.
Colquitt.

On Epidemic Diseases.

Mr. Harris, chairman.
Garland.
Jonas.
Hampton.
Sewell.
Bowen.
Frye.

To Examine the Several Branches of the Civil Service.

Mr. Cullom, chairman.
Dawes.
McMillan.
Hampton.
Groome.

On Expenditures of Public Money.

Mr. Wilson, chairman.
Harrison.
Plumb.
Platt.
Beck.
George.
Kenna.

On Finance.

Mr. Morrill, chairman.
Sherman.
Jones, of Nevada.
Allison.
Aldrich.
Miller, of New York.
Bayard.
Voorhees.
Beck.
McPherson.
Harris.

On Fisheries.

Mr. Lapham, chairman.
Sewell.
Dawes.
Palmer.
Morgan.
Groome.
Farley.

On Foreign Relations

Mr. Miller, of California, cha
Sherman.
Lapham.
Edmunds.
Wilson.
Morgan.
Pendleton.
Vance.
Brown.

On the Improvement of the M sippi River.

Mr. Van Wyck, chairman.
Mitchell.
Cullom.
Pike.
Jonas.
Cockrell.
Jackson.

On Indian Affairs.

Mr. Dawes, chairman.
Ingalls.
Harrison.
Cameron, of Wisconsin.
Bowen.
Coke.
Walker.
Slater.
Gorman.

*This committee has power to act concurrently with the same committee House of Representatives.

Judiciary.
hairman.

*Library.**
hairman.

ıufactures.
:r, chairman.

ary Affairs.
rman.
f Pennsylvania.

and Mining.
rman.
evada.

al Affairs.
' Pa., chairman.

alifornia.

orida.

On Patents.

Mr. Platt, chairman.
Hoar.
Mitchell.
Lapham.
Coke.
Call.
Camden.

On Pensions.

Mr. Mitchell, chairman.
Blair.
Van Wyck.
Cullom.
Sabin.
Slater.
Jackson.
Camden.
Colquitt.

On Post-Offices and Post-Roads.

Mr. Hill, chairman.
Sawyer.
Mahone.
Palmer.
Wilson.
Maxey.
Saulsbury.
Groome.
Jackson.

*On Printing.**

Mr. Anthony, chairman.
Hawley.
Gorman.

On Private Land-Claims.

Mr. Bayard, chairman.
Jonas.
Colquitt.
Edmunds.
Manderson.

On Privileges and Elections.

Mr. Hoar, chairman.
Cameron, of Wisconsin.
Sherman.
Frye.
Lapham.
Saulsbury.
Vance.
Pugh.
Jonas.

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atives.

*On Public Buildings and Grounds.**

Mr. Mahone, chairman.
Morrill.
Cameron, of Wisconsin.
Jones, of Florida.
Vest.

On Public Lands.

Mr. Plumb, chairman.
Hill.
Blair.
Van Wyck.
Dolph.
Walker.
Morgan.
Slater.
Gibson.

On Railroads.

Mr. Sawyer, chairman.
Hawley.
Sewell.
Sabin
Riddleberger.
Cullom.
Lamar.
Williams.
Jonas.
Brown.
Kenna.

On the Revision of the Laws of the United States.

Mr. Conger, chairman.
Platt.
Hale.
Pendleton.
Kenna.

On Revolutionary Claims.

Mr. Jones, of Florida, chairman.
Garland.
Williams.
Anthony.
McMillan.

On Rules.

Mr. Frye, chairman.
Sherman.
Ingalls.
Harris.
Pendleton.

On Territories.

Mr. Harrison, chairman.
Platt.
Conger.
Manderson.
Cullom.
Butler.
Garland.
Vest.
Jones, of Florida.

On Transportation Routes to the Seaboard.

Mr. Aldrich, chairman.
Cameron, of Pennsylvania.
Manderson.
Palmer.
Farley.
Slater.
Gibson.

* This committee has power to act concurrently with the same committee of the House of Representatives.

SELECT COMMITTEES.

To Investigate Condition of Potomac River front of Washington.

Mr. Ransom, chairman.
Mr. West.
Mr. Gorman.
Mr. Conger.
Mr. Cameron, of Pennsylvania.
Mr. Sabin.
Mr. Hill.

To Make Provision for Taking the Tenth Census and ascertaining the results thereof.

Mr. Hale, chairman.
Mr. Morrill.
Mr. Sawyer.
Mr. Wilson.
Mr. Pendleton.
Mr. Morgan.
Mr. Fair.

To Inquire into all Claims of Citizens of the United States against the Government of Nicaragua.

Mr. Maxey, chairman.
Mr. Groome.
Mr. Beck.
Mr. Hill.
Mr. Dolph.

On Woman Suffrage.

Mr. Cockrell, chairman.
Mr. Fair.
Mr. Brown.
Mr. Anthony.
Mr. Blair.
Mr. Palmer.
Mr. Lapham.

On Additional Accommodations for the Library of Congress.

Mr. Voorhees, chairman.
Mr. Butler.
Mr. Bayard.
Mr. Morrill.
Mr. Miller, of California.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 48.

IN THE SENATE OF THE UNITED STATES.

FEBRUARY 7, 1884.—Referred to the Committee on Rules and ordered to be printed.

Mr. MORGAN submitted the following

MOTION:

Ordered, That any papers on the files of the Senate relating to a bill or resolution referred by the Senate to any committee, shall be taken from the files and sent to such committee on the written requirement of any Senator addressed to the Secretary of the Senate. But this order shall not apply to the papers in any case which has been reported adversely by a committee of the Senate.

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48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 49.

IN THE SENATE OF THE UNITED STATES.

FEBRUARY 7, 1884.—Ordered to be printed.

Mr. BECK submitted the following

RESOLUTION:

Resolved, That the Committee to Examine the Several Branches of the Civil Service be, and it is hereby, instructed to inquire into the cause of the removal of John Dudley, colored, laborer on the rolls of the Senate. The committee is directed to reduce to writing the evidence which it takes in regard to this removal, and lay the evidence, together with its report, before the Senate. The committee is further directed to report what change, if any, in the rules of the Senate, is necessary to protect its employés against dismissal from their positions.

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H CONGRESS, } SENATE. { MIS. DOC.
st Session. } { No. 50.

IN THE SENATE OF THE UNITED STATES.

FEBRUARY 8, 1884.—Ordered to be printed.

Mr. RIDDLEBERGER submitted the following

RESOLUTION:

Resolved by the Senate (the House of Representatives concurring), That
oint committee of three on the part of the Senate and five on the
t of the House of Representatives be appointed to inquire into and
ort the cause of all removals of subordinate officers made by the
retary and Sergeant-at-Arms of the Senate, the Clerk, Sergeant-at-
ms, Doorkeeper, and Postmaster of the House of Representatives.
The committee is directed to reduce to writing the evidence which it
es in regard to all removals, and lay the evidence, together with its
ort, before the Congress.
The committee is further directed to report how many disabled and
er soldiers were removed, what States and Congressional districts
y were from; how many disabled and other soldiers have been ap-
nted, and the States and Congressional districts from which they
ne.
The committee is further instructed to report whether in their opinion
act known as the "civil service act" applies to appointments made
elective officers of the Senate and House of Representatives, and,
o, to report what legislation, if any, is necessary to the full and
per execution of that law.

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48TH CONGRESS, 1st Session. } SENATE. { MIS. DOC. No. 51.

IN THE SENATE OF THE UNITED STATES.

FEBRUARY 8, 1884.—Ordered to be printed.

Mr. VOORHEES submitted the following

RESOLUTION:

Resolved, That the Attorney-General of the United States be directed to report to the Senate the cause or causes of delay, if any, on the part of the Department of Justice in advising the Postmaster-General as to the proper construction of the act of March 3, 1883, in relation to the salaries and pay of postmasters; the question of the proper construction of said act having been referred by the Postmaster-General to the Attorney-General on the 25th of August, 1883, and no answer having yet been made thereto.

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48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 52.

ANNUAL REPORT

OF THE

LIBRARIAN OF CONGRESS,

EXHIBITING

THE PROGRESS OF THE LIBRARY

DURING

THE CALENDAR YEAR 1883.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1884.

ANNUAL REPORT

OF THE

LIBRARIAN OF CONGRESS,

EXHIBITING

THE PROGRESS OF THE LIBRARY DURING THE CALENDAR YEAR 1883.

LIBRARY OF CONGRESS,
Washington, January 30, 1884.

The Librarian has the honor to submit the following annual report of the condition and progress of the Library, and the business of the copyright department, for the calendar year closing December 31, 1883.

The annual enumeration of the Library, completed a few days since, exhibits an aggregate of 513,441 volumes, besides about 170,000 pamphlets. One year ago, the whole Library numbered 480,076 volumes, and 160,000 pamphlets; thus showing an increase during the calendar year 1883, of 33,365 volumes, derived from the following sources:

	Volumes.
From purchase	8,321
From copyright deposits	14,584
From deposit by the Smithsonian Institution	2,165
From exchanges	840
From donations	6,985
From increase of the Toner collection (presented)	470
	33,365

The enumeration shows that the law department of the Library embraces 60,719 volumes, included in the above aggregate, being an increase of 3,486 volumes in the Law Library.

The business of the copyright office again exhibits a considerable increase. The whole number of entries in the office of the Librarian in 1883 was 25,274, as against 22,918 entries in 1882; or an increase of 2,356 entries, while the fees received for copyright aggregate $20,899, being an increase of $2,345 over those of the preceding year.

The following statement exhibits by classes, the number of publications entered for copyright in 1883:

NUMBER OF ARTICLES ENTERED IN 1883.

Books	8,82
Periodicals	5,48
Dramatic compositions	49
Musical compositions	6,28
Photographs	78
Engravings and chromos	1,79
Maps and charts	97
Prints	13
Designs and drawings	40
Paintings	9
Total	25,27

The following table exhibits the number of each class of publication deposited in the Library, and the aggregate accessions to the collection through the operation of the copyright law.

NUMBER OF COPYRIGHT PUBLICATIONS RECEIVED IN 1883.

Books	14,5
Periodicals	11,4
Dramatic compositions	2
Musical compositions	11,1
Photographs	1,4
Engravings and chromos	2,7
Maps and charts	1,4
Prints	1
Designs and drawings	2
Total	43,4

Two copies of each publication protected by copyright being required to be deposited, the net addition to the copyright publications during the year embraced 21,719 separate articles, of which 7,292 were books and 5,726 were periodicals. This statement shows an aggregate increase in the receipts of publications coming in under the copyright law in 1883, of 4,458 articles, over those received in 1882.

The various funds of the Library of Congress exhibit the following unexpended balances on the 1st of January, 1884.

Fund for increase of the Library	$5,041
Fund for works of art	8,693
Fund for contingent expenses of Library	1,322
Fund for additional accommodations	1,510
Fund for purchase and printing of unpublished historical manuscripts relating to early French discoveries in the northwest and on the Mississippi	3,160

Since my last annual report, the Library has received several large and important accessions from the Department of State and from the War Department, through the necessity of vacating rooms which had

been occupied by books and newspapers, for the accommodation of an enlarged force of pension clerks. There were thus added to the Library over 3,000 volumes of bound newspapers, and nearly 3,000 volumes of Government documents. Many of the latter series will aid in completing the two sets of documents, which, under the provisions of the act of 1859 for the safe-keeping of public documents, are to be deposited in the Library of Congress, "and not to be taken therefrom." The files of newspapers, all of which are bound, include a great variety of American and foreign journals, running through the greater part of the present century, and are of great historical, commercial, and political value. This acquisition, without any expense whatever to the Library funds, adds another to the many cogent reasons presented in the rapid growth of the collection, for such enlargement of its accommodations as will render all its stores at once available to Congress, to the general public, and to those Departments of the Government which are ready to relinquish to it such portions of their accumulations of books and periodicals as are not required for current wants.

THE TONER COLLECTION.

During the year, the Librarian has completed the arrangement of the books constituting the Toner collection, presented to the Government by Joseph M. Toner, M. D., and accepted by act of May 19, 1882. The books have all been stamped and labeled, and the catalogue work is in progress. There have been added to this collection during the year 1883, by the donor, four hundred and seventy volumes of books and 3,755 pamphlets. To render its stores of books, manuscripts, and periodicals increasingly useful, better and more spacious quarters than its present location in a dark crypt of the Capitol are greatly needed. Among the accessions of the year may be named an extensive collection of authentic portraits of American physicians and surgeons, including many of early date, which have been fully indexed for ready reference. The frequent calls upon the Toner collection for information upon points of biography and history, as well as medical science, evince the utility of this addition to the stores of the Library of the Government.

The Librarian has again imposed upon him the unhappy duty of reminding Congress, through this joint committee, that the necessities for greatly enlarged library accommodation have become more pressing than ever, and still remain unprovided for. While a gratifying progress in the growth of this great collection in all its departments is recorded, no progress whatever has been made toward the relief of its overcrowded rooms and piled-up floors. The bill matured in the last Congress for the construction of a fire-proof library building failed to pass, under the rules of the House, though supported by nearly two-thirds of that body. Meanwhile, a small additional space has been secured in the crypt under the rotunda, and the architect of the Capitol has had shelved and prepared for use two remote annexes to the Li-

brary, which, though dark and inconvenient, afford actual storage for the great body of bound newspapers, and for the thousands of maps and charts, in which the Library of the Government is the richest in the country. But this added space is already more than full, although without it, it would have been impossible to receive and accommodate the valuable files of periodicals and documents before referred to as transferred from the State Department and the War Department to the Capitol.

The undersigned will not here repeat the urgent considerations for making early and effective provision for the overflowing Library of Congress, which have formed the burden of his annual reports during each of the last ten years. Suffice it to say that this emergency is growing daily greater, and more difficult to deal with; that the impossibility of properly arranging the constant additions of books leads to great loss of time in the service of them to members of Congress and the public; that the Library, now numbering more than half a million volumes, is provided with shelf room for less than 300,000 in all; that the multitudes of books heaped upon the floors are suffering daily injury; that no relief by colonizing or storing large portions of the collection can be attempted without separating publications which belong together; that the copyright deposits, like the models at the Patent Office, are a trust under the law, which the Government is bound to have always open to the examination of authors and publishers; and that a just regard for the credit of the country, for the current necessities and information of Congress, for public economy, and for the protection of Government property, demands prompt and decisive action on the part of Congress to provide the most ample, safe, and permanent accommodations for the accumulated stores of the nation's literature and art.

AINSWORTH R. SPOFFORD,
Librarian of Congress.

Hon. JOHN SHERMAN,
Chairman of the Joint Committee on the Library.

1 CONGRESS, } SENATE. { MIS DOC.
st Session. } { No. 53.

IN THE SENATE OF THE UNITED STATES.

FEBRUARY 13, 1884.—Ordered to be printed.

Mr. VOORHEES submitted the following

RESOLUTION:

hereas it is alleged that the Northern Pacific Railroad Company selected, in lieu of lands claimed to have been lost to said company in the "granted limits" established by the act of July 2, 1864 (13 ., 365), lands within the ten-mile indemnity limits, circumscribed aid act, which said lands, so selected, were occupied by homestead pre-emption settlers at the time the line of said road was definitely l, viz, October 4, 1880, and also at the date of such selections; and hereas it is alleged that the withdrawal from sale and settlement of odd-numbered sections within said indemnity limits, on the 4th day ctober, 1880, by the Secretary of the Interior, was unwarranted by act of July 2, 1864, or by any of the acts or resolutions amendatory eof, and that said odd-numbered sections were subject to entry r the public-land laws of the United States until the date of actual tion by said corporation: Therefore,

solved, That the Secretary of the Interior be directed to withhold pproval of the selections, made within the indemnity limits, as said, and to suspend all action thereon until Congress shall de-ine the questions involved in the claims of settlers upon the lands lected by said corporation.

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48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 54.

MEMORIAL

OF THE

MANAGERS OF THE INDUSTRIAL HOME SCHOOL OF THE DISTRICT OF COLUMBIA,

IN REGARD TO

The care and control of infant wards of the school, and legal guardianship of the same.

FEBRUARY 14, 1884.—Referred to the Committee on the District of Columbia and ordered to be printed.

To the Honorable Senate of the United States of America:

The managers of the Industrial Home School of the District of Columbia respectfully represent that said institution is a corporate body organized for the purpose of receiving and taking care of minors whose parents or guardians are unable or unwilling to protect and maintain their wards; that such children are sheltered in the Industrial Home School and are therein fed, clothed, and receive scholastic and industrial training, besides having imparted to them suitable moral and religious education.

Your memorialists respectfully represent that their efforts to prevent pauperism by carefully providing for the physical, mental, moral, and religious wants of the otherwise neglected and unprotected wards that fall under their charge are often entirely frustrated and are always impeded by reason of there being no statute by virtue of which the institution under control of your memorialists can be enabled to receive or assume legal guardianship of minors, and the undersigned officers of the Home, having been duly instructed in the premises, respectfully present to your honorable body the draft of a bill, which, they pray, may be introduced in the Senate and have appropriate reference, and which, if it meets with the approval of Congress, will invest our institution with power and authority highly requisite. To this memorial we have the honor to attach a copy of our last annual report and respectfully invite attention to marked paragraphs on page 4.

BRAINARD H. WARNER,
President Industrial Home School.
LEWIS ABRAHAM,
Chairman Committee.

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 55.

STATEMENTS AND TESTIMONY

OF

THE COMMITTEE OF STATE SUPERINTENDENTS OF PUBLIC INSTRUCTION

AT

The joint hearing had on the 16th instant before the Committee of the Senate on Education and Labor and the House Committee on Education, upon the subject of national aid to common schools.

FEBRUARY 19, 1884.—Ordered to be printed for the use of the Senate.

COMMITTEE ON EDUCATION AND LABOR,
Saturday, February 16, 1884.

Present, Senators Blair (chairman), George, and Call, with the Senate Committee, were present; Representatives Aiken (chairman), Willis, Taylor, and Morrill, of the House Committee on Education; also Dr. Gustavus J. Orr, of Atlanta, Ga., State superintendent of education; Dr. Thomas W. Bicknell, of Boston, Mass, president of National Educational Association, also chairman of Inter-State Federal Commission; John C. Scarborough, superintendent of education, State of North Carolina; A. J. Rickoff, superintendent of public schools at Yonkers, New York; H. Clay Armstrong, superintendent of education, Alabama; A. Coward, superintendent of education, State of South Carolina; J. W. Holcombe, State superintendent of public instruction, of Indiana; Professor Pointer and others, composing a committee of the department of superintendence of the National Educational Association.

ORDER OF PROCEEDING.

Representative TAYLOR. I will suggest, as we have had considerable general discussion heretofore, that I would be glad to hear from the gentlemen before us on the details of the bill to be passed. We seem to be in accord as to the importance of passing a bill of some kind for the purpose of removing the illiteracy of the country, but the trouble with some of us is how to accomplish this object; how much money is necessary; how much each year; shall a uniform appropriation be made; or shall we begin with a large sum and decrease it each year; or shall we begin with a smaller sum and increase it each year; and if we begin with the largest sum should we require the State to increase its fund as the Government fund diminishes? These and kindred questions are the ones that now trouble me the most, and I should like to hear them discussed.

Mr. ORR. Mr. Chairman, I will state that the committee of the National Educational Association, now before you, had a meeting yester-

day and agreed upon a certain order of presenting the matter to the committees of Congress. We determined to have the general subject presented first. Our committee agreed not to urge the adoption of any particular bill. We will answer any questions that may be asked us and give our views, but the department is not committed to any particular bill, neither is this committee. Most of us though, have read the bills. Our agreement was to have one gentleman present the general subject first, a gentleman from the East. Then, as I might see proper to call out, gentlemen from the West were to represent and discuss another phase of this subject, the application of national aid to cities, and give us some illustrations, and then gentlemen from the Southern States were to state briefly the wants of their States. Under that arrangement and according to the plan agreed upon, I have the pleasure of introducing to the committee, first, Dr. Bicknell, of Boston, who will present the general subject. He is the president of the National Educational Association, and is well known all over the country as the editor of the National Journal of Education published in Boston.

The CHAIRMAN (Senator BLAIR). I understand you that he will address the committees as a member of the convention recently held here, and also from his standpoint as president of the National Educational Association?

Mr. ORR. He comes here as a member of our committee. He will exercise a good deal of freedom, I suppose, as to the mode of his address. He was to present the general subject.

The CHAIRMAN. We will be glad to listen to Dr. Bicknell.

REMARKS BY DR. BICKNELL.

Mr. BICKNELL. Mr. Chairman and gentlemen of the committees: We deem ourselves very happy to be before you this morning under the eye of the educator. The committees which have in their hands the direction of national legislation with reference to education are the most important in the affairs of Government, and we come with great confidence this morning, with the assurance that this matter has been committed to very wise and able hands, and that in the administration of these affairs you will do what wisdom and prudence and conservatism demand with reference to legislation affecting the great interests of education throughout the country.

I come to day as a representative, in the first instance, of the department of superintendence which has just held its sessions here, being one of the committee of which Dr. Orr, of Georgia, is the chairman, and he has deputed to me the honor of opening this subject, probably from the fact that I hold this year two important relations to education in the United States, which I may state to you in order that I may show you the great bearing of this subject on our national educational interests —the subject which is before us—and the great interest that is felt in it throughout the country. In the first place, fortunately or unfortunately, I am president of the National Educational Association, which represents the educational interests of the whole country in all their broad bearings, both elementary and higher, covering every grade of instruction and every department of work from the highest to the lowest. As you well know, this association has been foremost in advocating many of the great measures which have been before the country and which have been finally adopted by it, especially the Bureau of Education, and the influence that has given it power and success and efficiency in the country. Many of these things have been discussed

and advocated in our association and have been pressed upon the intelligence of the committees of the two Houses of Congress, and they have generally adopted them after wise consideration.

This association has for several years had under consideration the subject of the illiteracy of the country, not of the South merely, but of the North and the East and the West, of the whole country, looking at it not in a local, but in a national aspect; looking at it not with reference to States and its application and effect on particular States, but with reference to all the country and all the sources of illiteracy and the remedy therefor. Every year, I think for the last several years (I cannot tell how many) we have had the matter under discussion in the general association, and in our department of supervision, and have passed resolutions, usually unanimously, with reference to this question, urging upon the National Congress and upon State and other legislation such guidance and administration in this matter as shall give to our whole people the opportunity of educating every child so that he may become an intelligent citizen of the Republic. Last year, especially, this matter was brought before us at our meeting at Saratoga and very strenuous arguments were there presented and resolutions were adopted affecting this question, and it will be before us again and again, until the consummation which is devoutly wished and desired shall be secured.

Still further, I represent, as president of the commission, the most important voluntary convention that was ever held in this country, which was held at Louisville in September last. You are well aware, perhaps, that the governor of Kentucky, with a very wise sagacity with reference to the educational interests of the country and of his own State, invited an educational convention to meet at Louisville during the time of the great exposition there, to discuss the subject of national education, with reference especially to the needs of the South and of his own State of Kentucky. That convention was composed of delegates from twenty States, North, South, East, and West, and those representatives, honorable gentlemen at the head of State and city governments, men who were appointed by governors of States, came together and there discussed this great question. We were together for three days, and a commission was appointed consisting of some of the most eminent men of the country. Judge Beckner, of Kentucky; Dr. Curry, of Virginia, the able agent of the Peabody fund; State superintendent, Hon. Mr. Fitzgerald, of Tennessee; Dr. Gregory, of the United States Civil Service Commission; Dr. Heygood, of Georgia, the agent of the Slater fund; Dr. Lytle, of Pennsylvania; Dr. Newell, of Maryland; Dr. Northrop, of Connecticut; Dr. Payne, of Tennessee; Hon. Hugh S. Thompson, the governor of South Carolina, and Dr. Waite, one of the statisticians of the last census, with myself, were appointed a commission to memorialize Congress on this subject.

After a very full presentation of the matter on the part of the leading men of the country, among them a member of one of your own committees, the Hon. Mr. Willis, of Kentucky, who made one of the most eloquent and earnest addresses on this subject before that body, it was unanimously urged that our commission should come before you and present our views on this subject, and, if possible, formulate some plan by which the committees of Congress might be assisted in the work of procuring the wisest and best bill which might be adopted by the national Legislature. However, I do not propose at this hearing, unless you wish me to state my views thereon, to represent especially either one of the bodies in which I now hold a position, but wish simply to

state the general question and some arguments with reference to the methods of carrying out the plans proposed.

First, let me say that I do not think it advisable, and it has been suggested wisely by the Hon. Mr. Taylor that it is not very necessary at this stage of the discussion, to present the arguments in favor of some great administrative movement which shall tend to remove the illiteracy of this country. It is a self-evident proposition in our Government that education is the basis of intelligent citizenship, and that when we shall have secured universal education for every man and woman of our nation we have secured a condition which shall determine the prosperity and happiness and high success of our nation. When advocating this question, and in speaking of illiteracy and its effects upon our nation, I of course must look at it in the light of statesmen and not of partisans. It seems to me that it rises far above any question which is before our State legislatures or the national Congress, or which is before the minds of men in their local, individual, and political capacities, into the high realm of citizenship and national patriotism which should control and govern all of us irrespective of our localities or our relationships to party.

We come here to-day representatives, as I see around me, from eight or ten of our States, North and South, East and West. I happen to be the only representative here this morning from New England, but New England is solid on this question, as our chairman, the Honorable Mr. Blair, well knows; and hence we do not regard it necessary to be represented in very large numbers, because if one comes he is understood to represent all in this matter. So there is here from the West, Hon. Mr. Holcombe, of Indiana, and others to speak of their own views and of their own localities with reference to this subject.

Our nation is not alone among the illiterate nations of the world. The evil which exists among us is not a new one, but is one which demands, it seems to us, immediate and special attention. It is one of the great exigencies of our times; it demands immediate care and attention in in order that the future of our Republic may be secure. We stand as the great duke stood, four square to all the winds of heaven, and blowing in upon us are the nationalities of all the world. Some of them come from countries that are devoted to education more thoroughly than we; others from countries less interested in education. There comes from our northern border a population, especially to New England, which is affecting our literacy there very remarkably indeed, reducing our condition to one of some anxiety with respect to our voting population. There reaches us also from eastern shores across the Atlantic populations from Germany, where there is perhaps less than 1 per cent. of illiteracy, and from that point we reach a point of illiteracy in France where a population of 36,000,000 people has an illiteracy of 36 per cent., I think—14,000,000.

Senator GEORGE. What do you mean by illiteracy? Incapacity to read and write?

Mr. BICKNELL. Yes, sir; incapacity to read and write.

The CHAIRMAN. Of those who are over what age?

Mr. BICKNELL. Over ten years of age.

The CHAIRMAN. Educators understand that to be illiteracy?

Mr. BICKNELL. Yes, sir.

The CHAIRMAN. Of those who read *and* write, or read *or* write?

Mr. BICKNELL. Usually including both, but it is quite difficult sometimes to divide and draw the lines. In France the returns which come to us do not say "read or write," but "read and write," so that we are

not able to say in regard to France as we are able to say in regard to our country. The census of 1880 discriminates between the number who can read and the number who can write, but the French do not; and according to the returns that come to us out of a population of 36,000,000 in the republic of France, there are 14,000,000 over ten years of age who cannot read and write.

The CHAIRMAN. Then of the whole population of France over ten years of age, how many can read and write?

Mr. BICKNELL. I am not sure as to how large a portion of the population is under ten years of age. I should say one-third probably.

The CHAIRMAN. Would it not be apparent that there are more over ten years of age who cannot read and write than the population under that age amounts to?

Mr. BICKNELL. I should say probably so. That would leave 24,000,000 over ten years of age, and if so, 14,000,000, which of course would be more than half the population over ten years of age can neither read nor write.

We have coming in upon us from all the nationalities around us certain conditions of illiteracy as to population which are affecting very materially our own status in this matter, and to-day we are suffering in illiteracy; I mean illiteracy over ten years of age, that which can neither read nor write, or which can do only one and not the other. If you have only the one the other is of but very little value; that is, the mere minimum of ability to read when you cannot write is of very little value to the citizen. So the other case is true, where there is the ability to write and not the ability to read, the minimum of writing is of very little value; and even in many of these cases where there is the ability to both read and write the minimum is so small and the value of that ability is so small that really it amounts almost to illiteracy itself.

There are two sources of illiteracy in our country. By the last census, we have a population of 50,000,000, in round numbers, of whom 6,000,000 and something over can neither read nor write, which is one in eight. That is an increase of illiteracy over the census of 1870 of nearly 2,000,000, which is a very remarkable fact and one of the most stirring ones.

Senator GEORGE. Do you mean to say that the illiteracy of the country has increased 2,000,000 since 1870?

Mr. BICKNELL. Yes sir; and the figures are in the Compendium of the Tenth Census, in the second volume, showing that our illiteracy has increased since the last census nearly or quite 2,000,000; that is, from 4,000,000 to 6,000,000.

The CHAIRMAN. It is 6,000,000 now; it was 4,000,000 then; an increase of nearly fifty per cent.

Mr. BICKNELL. Yes, sir. This is a startling fact, but it is not necessary to go into a discussion of it. Simply to state the fact carries with it its own conclusions. The sources of this illiteracy, as I have already suggested, are two—one local and the other general. One is that which we have inherited from our social and political relationships in the last two hundred years, for which we all are responsible, and to the removal of which we must all give a hearty and a helping hand.

The second source is that which I have already suggested, from which the northern and especially the northeastern part of the country is particularly suffering, the foreign illiteracy poured in upon our shores. While the State of Massachusetts, which I represent, has less than one-half of one per cent. of native illiteracy, it has a sum total of over five per cent. of illiteracy owing to this cause, and the various States of the

country range from Iowa, which has the lowest, representing two and four-tenths per cent. of illiteracy, through Massachusetts, which has five and three-tenths per cent., to Arkansas with its twenty-eight per cent., Florida with its 38 per cent., Mississippi 41, Georgia 42, Alabama 43, South Carolina 48, and New Mexico 60 per cent. of illiteracy of population over ten years of age, who can neither read nor write.

Senator GEORGE. On what basis is that per cent. calculated?

Mr. BICKNELL. On the basis of the number enumerated over ten years of age—not on the total census, but on the total illiteracy. Page 1645 of the second volume of the Compendium of the Tenth Census gives a sum total of illiteracy of a total population over ten years of age of 36,761,607; there are unable to read only 4,923,451, or 13 per cent., and unable to write, 6,239,958, or 17 per cent. I do not care to go into the statistics to make a comparison, because those figures are easy to the reach of every one, and are found on the pages subsequent to the one I have referred to, so that it is not necessary to quote those figures. Those are the figures which the census of 1880 shows, and which are so very startling.

With these facts before us it is clear that this question rises above all State legislation and State politics, above all party interests, to one of the greatest national importance, affecting, in its local significance, States of the South in its most fearful aspects, where the illiteracy is the largest, and also affecting, not only directly, but indirectly, the interests of the other States wherein illiteracy is in less proportion; so that Massachusetts with its 5 per cent. of illiteracy has not only an interest in the removal of that illiteracy from its own borders, but also has an equal interest in the removal of the illiteracy from Georgia, North Carolina, South Carolina, and every Southern State. Hence we come to argue this question on its broad platform of national and philanthropic demand rather than that of local interest.

I should feel, as I presume we all do this morning, that there is nothing that jeopardizes the nation so much in all its interests, especially politically, and as largely probably socially and industrially, as illiteracy. This subject I need not stop to discuss. If it were announced to us that six million foreign people armed to the teeth would invade our borders within the next twelve months to dispossess us of our peculiar rights and privileges as a people, I am quite sure that every arm would be nerved and every bosom would be bared to stay such an immigration and avert the terrible calamity which might come from such an inroad upon us. But we have right in our midst six million people who are very soon to be our voters, and many of them are now, who are to stand as the representatives of all our social and political institutions, who are unable to understand from any methods of reading or writing what the duties and rights and privileges of citizenship are.

You will allow me, if you please, to present under three heads the argument that I wish to make especially with reference to the methods of removing this great evil which I have suggested. In the first place, I appeal to that wise statesmanship which we shall expect from our national legislators in this matter. It seems to me that no question demands so wise statesmanship as this. I cannot conceive of any which has such wide reaching and such tremendous interests involved in it. I cannot conceive of any which demands such a thorough study of the great questions of civil and political economy as this. Of course the first point is efficiency of plan as to the method of reaching and removing this great evil. As to its immediate removal there can be but one wish, and I presume there is but one opinion, for wherever I have talked

with men, East, West, North, or South, there is the universal sentiment that no action can be taken too soon, and that no action can be too thorough to meet and remove this evil before it has so thoroughly grasped and controlled all our interests as that, it will be beyond the power of our reach and influence.

To you especially, gentlemen of the Committees on Education of the two houses of Congress, I commit the administration and the formulating of the plans into a bill which shall establish some measure for reaching this evil and removing it. It is a curse to us to-day, but will be a shame and a dishonor to us to-morrow if we do not remove it, because what we are not responsible for to-day by reason of inheritance or by reason of the great freedom of invitation to foreign populations to come to our country, will to-morrow be to us a disgrace if we do not attempt to so change and modify such population that within one or two generations it shall stand as the representative of good government and social order and law, and every interest which makes society valuable. If under the influence of republican government and its wise administration we cannot transfer and transmute these elements which come to us so incongruous, so rough, so out of harmony and out of relationship to our institutions, into good and intelligent American citizens, then it seems to me that our institutions have been tested and, to a certain extent, have failed of their great power and purpose. But it is within the possibilities, and the easy possibilities, of all our communities as has been proven in communities where foreign populations have come in upon us of an illiterate character where within one or two generations that stigma, if it is a stigma, has been removed and men and women coming out from such generations have come to be the most stalwart and true and intelligent men and women in all the relationships of social, civil, and political life, which is true throughout our country where public school elementary education for all the people has had its best and most desirable results. We claim that education can do this for the great bodies of the peoples coming in upon us. We claim also that it can do it for all those who have inherited the lot of illiteracy, and who only need the opportunities which aid from the General Government shall furnish to give them the power to stand as men and women, and not as serfs, in the condition in which many of them now stand with reference to the General Government.

It is well known that the North in its larger wealth does not especially demand nor so largely need this aid. The great demand and need is in the South, which has been so much impoverished. The South does not stand to-day as a beggar at our doors with reference to this matter—far from it—but they come to us and we come to you from the North and from the South, not in the position of those who are asking that you shall be almoners of a bounty to us simply as a gift; but, as a matter of right and justice to us as a people, we ask that those who are in weakness may be given strength so that all may be strengthened alike. When we strengthen one part of our nation we strengthen the whole; and, as in a chain, if our strength as a nation is only as the strength of the weakest part, then we must refer to the illiterate portion of our country to find exactly the measure of our ability in this matter. I may say that the larger body of population as a whole is on the side of literacy. Therefore, we find over against the illiteracy this large body of literacy, which for the present so largely counter balances it.

The people of the South especially are in very needy circumstances. They are taxing themselves now to the very utmost of their ability. I have been through the South three times. I have visited every State

in this Union but two. I have seen the educational men of those States, and I know the condition of this country, East, West, North, and South, more or less largely; and I say to you that there are no people on this earth struggling with the question of education so grandly and nobly as are the men who represent the Southern States here to-day, and their assistants in this matter. Take Dr. Orr, Mr. Scarborough, Mr. Coward, Mr. Armstrong, and other gentlemen here; they are doing the noblest thing that can be done for this work, but they are estopped by reason of the want of funds. Those States are taxing themselves for education as Northern States have never taxed themselves, but they find that the great problem upon them is beyond the adequacy of their force to solve, by reason either of statesmanship or of financial ability behind statesmanship, to carry it into effect. Hence it is that they stand together with us to ask of you that some means shall be provided, and at once, by which they may be aided in their noble and generous efforts to remove this great evil from their midst.

Let me say to gentlemen that in this matter there is no color line in the South in education, so far as I understand it. These men have stood up before us in all our conventions, and I have been there with them, and I have been through their schools, and what I have admired is the splendid generosity of men who come forward and say that the white and the black races alike shall be educated and given the privileges of literacy and citizenship which belong to every child in this Republic. It is to their credit that they stand so nobly and gallantly together on this question. We see no way to relieve this great burden and incubus which lies upon them except to come to the mother of us all, the General Government, and to ask her that from her bountiful stores she shall give some bread to her children, and that these suffering and starving ones shall not grow up to be paupers at her door, and paupers civilly, intellectually, and in every sense of citizenship, simply because she has refused it, and when they asked it she gave them a stone instead of giving them bread.

All of us here to-day understand that our United States Government in all its departments is in a most flourishing condition. We understand that there is money in the Treasury to overflowing, that there is plethora here, and that you hardly know as statesmen what to do with it. You are discussing rivers and harbors and great interests; you are discussing all the questions lying here and there along the line of your local and individual interests to find where it is that you can apply this money to the best good of the nation. Gentlemen, we come here to-day to show you how this problem can be solved on the broader national basis of putting this money where it will do the most good by applying it to the great source of power, to objects that will remove the great difficulties which you are investigating in other directions. We believe that a dollar taken from the Treasury for education will remove difficulties which require perhaps ten dollars of expenditure coming from illiteracy. We believe that as a question of great national economy and a wise administration the demand to-day is that you shall put one hundred million dollars of money, if need be—fifty million dollars, if not a hundred million—where it shall reach and influence and control the future legislation of the country and the future interests of all our States.

Any efficient plan to reach this condition of things will be more fully presented by the gentlemen of the South who are here, and I am glad that the South is so ably represented in such men as Dr. Orr and his associates, who have so nobly fought this battle since 1865—men whom

I respect and honor so much that I cannot speak a word too heartily and cordially for them.

Let me outline in three lines what I think, as legislators, seems to me to be demanded: First, there should be, of course, efficiency in plan. Such a question as this demands great consideration with reference to the plan to be adopted. The plan of appropriation which we would suggest should be divided in three lines: First, to common-school instruction in the South, and also all over the country, because all our States under any plan of administration and distribution of funds will receive a larger or smaller measure.

I was surprised in looking at the figures the other day to find that Rhode Island and Delaware would receive equal sums under any bill that you might arrange for the distribution of funds; that Pennsylvania and Maryland would receive equal amounts; that Ohio and West Virginia would receive equal sums in the distribution of the money, whether you distribute it on the basis of school illiteracy or on that of general illiteracy, for they are nearly *pari passu*, which is a remarkable fact; so that we are alike in this bondage, under this servitude of illiteracy, and we want to remove it from the whole country alike.

Mr. RICKOFF. Perhaps it is necessary to explain what you mean by school illiteracy.

Mr. BICKNELL. Illiteracy between ten and twenty.

Mr. RICKOFF. That is, the illiteracy of those who ought to be educated and who are yet not adults.

Mr. BICKNELL. Who are now by the census illiterates.

The CHAIRMAN. Illiterates of school age?

Mr. BICKNELL. Yes, sir; illiterates of school age.

Mr. RICKOFF. And of sufficient age to have been educated; that is to say, to such a degree as to be able to read and write?

Mr. BICKNELL. Yes, sir. It seems to some of us that any bill to be devised, or which should already have been, should aim directly at the removal of this specific illiteracy, and that this should be made the basis really of the distribution, although perhaps it will not make very much difference at present. In a bill which was prepared and which may be presented for your consideration as a suggestive formula of some of the plans, a plan was devised by which appropriation from the National Government should be distributed on the basis simply of the school illiteracy, so that the money should be directed especially toward the evil itself, not toward general illiteracy, because you cannot reach that beyond twenty years of age by any of our school laws, the schools not receiving under ordinary school tuition those over twenty years of age. Hence between ten and twenty we regard as the school illiteracy, those who have passed through the elementary years of school life, but who have not received it and are now unable to read and write. The census shows that in this country to-day out of six million over ten years of age there are two million of school age between ten and twenty who can neither read nor write. The proposition of those who have looked on the matter in this light is that the money from the General Government should be directed especially towards this body of illiteracy.

There are three lines, it seems to us, which you may reach with great efficiency in the matter of appropriation. The first is, common-school instruction, including not only rudimentary instruction in "the three R's," as it is usually termed, but it also seems to us very wise that there should be the rudimentary elements of the industrial arts and sciences taught in our common schools. These are coming to be taught in various

portions of our country, with great value, it seems to me, to the future citizenship of the country with reference to labor interests and the solution of a great many other social problems, accustoming the boys and girls to the idea of labor as the basis of all our wealth. Of this will require the greater portion of any fund which may be administered through the General Government.

There are two other objects, however, which it seems are very advisable that the money should reach. All portions of our country are suffering from poor teaching, but especially is that true in that portion of our country where the traditions and habits of the people have not been in the line of free public education, and where there have not been the facilities for the training of teachers. Hence it is that the South to-day is not only poor in its ability to reach the evil complained of and from which it is suffering, but it is also poor in a certain sense in its teaching ability. When I say this I do not say it at all to their discredit, but rather to their honor that such a great body of teachers has been found as I have met through all the Southern States, and met with so much pleasure, who are doing this work so nobly as they are. But still all sources in the South, from Dr. Sears, who was the first agent of the Peabody fund, to Dr. Curry, and all State superintendents, complain that one of the great evils from which they are suffering is the want of sufficient and able teachers. It seems to me that in the administration of the fund a portion of it, at least, should go towards this one very important object of raising up and training efficient teachers who should go into these schools; for, as Mr. Garfield said of Mark Hopkins, he would rather sit on the end of a pine log, with Mark Hopkins on the other end to teach him political economy and moral philosophy, than to sit in the finest building under the canopy of our Government with poor instruction. It is true that more than school-houses, more than forms and administrations of school government in the various departments, we need the trained teacher qualified to do his work. So it seems to us that there should be a portion of the fund devoted by the General Government to the training of teachers in all our States, especially in those States where such training is most largely needed. I think that a large portion of the Peabody fund is now devoted to normal-school training; is it not, Dr. Orr?

Mr. ORR. Largely.

Mr. BICKNELL. So wise have those men been that while the fund was first directed to the matter of building school-houses and the encouragement of education in various localities in the South, to-day that fund is almost entirely devoted to the training of teachers, showing the great wisdom of the men who are at the head of its administration. Trained teachers can go into those schools and call around them those who shall give them life and character, and in a very short time the vital forces of education will be given them.

The third line of aid is in the building of school-houses. Perhaps the gentlemen of our committee would differ in opinion on this subject; I am not sure in regard to that; and I presume the gentlemen of the committees I am addressing may differ as to whether any aid should be given toward the building of school-houses in needy and neglected sections. It has always seemed to me, and to our commission, of whom Dr. Curry is one (I am now speaking in reference to the commission appointed at Louisville), that some portion of the money should be devoted to encouraging school-house building and appliances in those portions of the country where the need is the greatest, as in many of our Southern States, and to encourage it by saying to localities, "If you will

put $100 against another hundred you can have so much to encourage you in school-house building." This, it seems to us, is an important item in this consideration.

I pass, however, from furnishing any plan, which covers, it seems to us, these three points: first, of direct application of a fund to the machinery now in operation, which in many of the States is very efficient; also to the supplementary work, which is so important, of securing and employing trained teachers through normal and institute training; and also assisting, where they are very needy, in the matter of erecting proper school-houses for the accommodation of schools; for where there is a good school-house and a good teacher the scholars will come. You do not need much other compulsory law in this country. We are a country that govern ourselves. Instead of having legal compulsion on one hand we want the moral constraint that brings the child to the school on account of an attractive power in the school-house. A good teacher put there forms the best magnet you can put inside the school district to draw children from home to the school-house. I think all our friends, and I see some assenting to it, feel that the great force needed all through the country is the efficient teacher within the school-house, and the scholars will come to it. Socrates and Plato did not need to advertise their schools very much. If there was a school-house in the Desert of Sahara, and Socrates and Plato were the teachers, many of our people would be found flocking there as students. So if we put within the school-house the qualified attractive teaching which belongs to our new education and our better methods of education, we shall have no trouble about compulsion; there will be a law of compulsion within every home and every child's heart that will lead him to the school-house to get the privileges and advantages which are coming therefrom.

Representative TAYLOR. In those localities where there are good schools, good houses, good teachers, where there is, in short, ample provision, and yet where there are thousands of children who do not go to school, as in the manufacturing districts (I could point out many of them in Ohio, where there are thousands of children who never see the inside of a school-house from the beginning of the year to the end), how would you reach those children?

Mr. BICKNELL. I am very glad that question has been asked by my friend Mr. Taylor, and I shall answer it. In Massachusetts we have a factory law which compels the unscrupulous man (for there are unscrupulous men in charge of manufacturing interests) to send the factory children to school for a period of the year at least. There may, of course, be needed some form of compulsion which shall require the manufacturer or other person who is very anxious to get all the labor out of his children and very little education into them, to compel such a person to let go his hold upon them for a certain portion of the year. We have a law in Massachusetts which requires four months of school on the part of every child who goes into a factory, and we have officers who see to it that the law is complied with; so that in many of our large manufacturing towns, as Fall River, Lowell, and others, we have a minimum of non-school attendance and very small instruction. I think it is so in New Hampshire, which Senator Blair represents, and it is so throughout New England, that usually our factory laws and other laws relating to the manufacturing interests compel the attendance of those children; and those laws are generally heeded. In Connecticut, I think, the law is more perfectly carried out. There is there an agent who goes about and sees to it that the law is faithfully administered. I do not know of

any children in New England so fortunate in this regard as in Connecticut, where the manufacturers have all entered into a compact that they will not allow, under any circumstances of which they are cognizant, a child to be taken in a factory who has not attended school as required by law. That is true of Connecticut; and I am quite sure that the minimum of non-attendance is there reached.

Representative TAYLOR. I admit all that; but how will your reach that class in a case like the one I state. Our illiterates in Ohio, who are far too numerous, are amply provided for so far as schools and teachers are concerned, but they do not go to school.

Mr. BICKNELL. I think we could not disturb the State jurisdiction over this question by any national legislation.

Representative MORRILL. Could we not provide in a bill that no State shall receive any benefit from the fund unless it has a compulsory educational law?

Mr. BICKNELL. It is possible that you might do that. It seems to me hardly wise to do so, however, because, of course, such a provision would apply to the whole country alike, and I think Massachusetts would be equally unwilling with South Carolina to receive any fund under a national compulsory law. I think it would be generally regarded as an interference with State rights and with the autonomy of the States, a principle which is so sacredly regarded, and properly so, by the governments of the Southern States.

Representative TAYLOR. You compel people to pay their taxes for school purposes. That is compulsory. When you have a fund directly intended for illiterates, why not compel the illiterates who are of school age to attend school?

Mr. BICKNELL. I think it is possible to do so, but it seems to me that there is a wiser way. I would put a drawing compulsion on the other side rather than a forcing one.

The CHAIRMAN. Do you understand that national legislation could compel directly the attendance of scholars, or could it only withhold the funds until the State chose to enact a compulsory law?

Mr. BICKNELL. It seems to me that the latter is the only ground the National Government can take in this matter, as I view it.

The CHAIRMAN. If the only ground the National Government can take is that it can only compel attendance by withholding the fund, where would the blow fall if the State should refuse to enact the law, upon the State or upon the child?

Mr. BICKNELL. The suffering eventually would come upon the child, certainly; but that is a question to which I have not given as much consideration as you gentlemen of the national legislation, so that I am scarcely qualified to advise on that subject.

Representative TAYLOR. Would not that depend on the fact whether the State would make the necessary change or not?

Mr. BICKNELL. I think there should be required at least four months of school. I think all the bills now before Congress require that there should be at least four months of school in every school district to secure the money which is to come from the General Government through the State authorities; but whether it should require that every child between the ages of ten and twenty should attend school while receiving this national aid is an important question. It is not so adopted in several States which hold a certain relation to the towns such as the General Government does to the States. The States do not in any instance require the towns to see that every child is sent to school in order to receive the aid given by the State. The question is, whether it

would be wise for the National Government to adopt a policy which the States have not adopted in reference to their own localities. Ohio, I believe, has no compulsory law with reference to towns, neither has any State that I am aware of.

Representative TAYLOR. Ohio has recently passed a compulsory law, but it is not strictly enforced.

Mr. BICKNELL. We have compulsory laws in New England. We have had plenty of laws on that subject, but very little enforcement of them; and I think that is usually the case in our form of Government. There is a very great difficulty in establishing any provision which will meet every difficulty. It seems to me that we can only meet these difficulties in the larger and broader sense, and then make the schools so good and the conditions of attendance so easy that every child can attend school and receive this education without absolutely saying to every child "The whip is behind your back; you must go to school whether you like to do it or not."

The CHAIRMAN. As you have spoken of the necessity of compulsion on account of the action of manufacturers and employers, there ought to go along with it the additional fact that it is quite as often or oftener the case that the child so employed fails to attend school because the parent desires the wages of the child.

Mr. BICKNELL. Certainly.

The CHAIRMAN. The trouble is oftener with the parent than with the employer, though too frequently it is the case with both. You find it so, Mr. Taylor?

Representative TAYLOR. Yes, sir.

Mr. BICKNELL. Certainly that is the case. The second point of consideration, and I think the question which lies in the minds of many, is in regard to the administration of the fund rather than in regard to the matter of the appropriation itself. The difficulties I have found are rather as to how the fund shall be administered and through what channels, and will it be wisely administered in the various States receiving larger or smaller sums. That, it seems to me, is the great interrogation point in regard to this matter. I believe, first, that the States should be recognized in their perfect independence in reference to State education as well as other questions, and the educational authorities of the State should be the channels through which the funds should be administered. There should be no national interference in any form, no agents or other managers, or any sort of measure, with the exception that there should be demanded a certain minimum of schooling, say four months, and then there should be certain reports to see that the funds were honestly administered in the various States and wisely appropriated to the uses; that four months of schooling shall be secured, and that no forfeitures or converting into the Treasury should come for any reason whatever, except from the refusal to comply with such simple conditions as these. I think that these are all that should be required under any circumstances. The money should be given directly to the States for their own administration, and the State authorities should make report as to the method in which it is distributed.

Here let me say, that so far as I know the gentlemen of the South who have the charge of the State educational departments there (and I think I know every one of them personally, perhaps with one or two exceptions), they are men, into whose hands you can safely place this money. This question has been asked me by Senators and Representatives of the North whom I have met. I have been asked from my personal acquaintanceship in regard to this matter, and I have uniformly

answered that I believe there is no class of men so deeply interested in this subject and so earnestly devoted to the honest and true appropriation of money to it as are the gentlemen who have charge of the educational departments in all our Southern States. In fact, the gentleman who recently held the responsible office of State commissioner of education in South Carolina now holds the honorable position of governor of that State, showing in what high esteem in certain instances, and in this particular instance, the former position is held, when the honorable position of governor has been assigned to him directly as a promotive office from that of State commissioner of education, and especially because he had devoted himself to education. The principal reason why he was promoted to the governorship was because of his equal and impartial administration of the affairs of that State in the education of the children of the State. I believe I am right in so claiming, am I not, Dr. Orr?

Mr. ORR. I have no doubt that fact had great influence.

Senator GEORGE. Are your views on the subject of the administration of the fund concurred in by the bodies you represent?

Mr. BICKNELL. I think they are. A vote was taken at Louisville, where twenty States were represented, and they said, "Let there be no conditions placed upon the States." So far as the Northern portion of the country is concerned, I have conversed with nearly all our leading men, and all are agreed that there should be no trammels, no conditions, except those of an inquiry into the honest administration of the fund, just the same as we do in our State governments, which see that the towns honestly apply the funds which they receive from their hands.

Mr. RICKOFF. You might refer to the Louisville resolutions.

Mr. BICKNELL. I am glad you have called my attention to those resolutions. I will read, if you please, a resolution passed by the convention at Louisville, September 19, 1883. These resolutions were the summing up of that great convention, the equal of which has never been held in this country:

RESOLVED, That this convention cordially approves the principle of giving Federal aid to be distributed among the several States and Territories upon the basis of illiteracy: *Provided*, That such aid shall be distributed under the State laws and by the State authorities exclusively, but with proper guarantees for its faithful application.

That was passed by the convention at Louisville. Similar resolutions, I think, have been passed by our various educational bodies. I am sure that, so far as I know, that is the universal sentiment of the educational people of the country. The second resolution was that a commission should be appointed whose duty it shall be to memorialize Congress on this subject, and to assist in any manner which their judgment may approve in securing the legislation necessary.

Let me hastily pass to the third point, which is as to the permanence in result. The object to be secured is not only the removal of present illiteracy but the removal of illiteracy in the future. Simply giving the money to remove illiteracy from the conditions of two million people would be a very small consideration if that was all we had in view, but it is to build up in those communities a system of instruction which shall be self-perpetuating on the line of its constant and continued removal and separation from the community, keeping it from us and guarding the community against it. There is no plan which can be devised which will be fulfilled except it applies itself directly to the introduction and building up of a self-supporting system. I believe the general Government should be in all its legislation the encourager of the upbuilding of a system of education as healthy and generous in one portion of the

country as in every other, so that wherever the traditions or the habits of the people in the past have not been so far devoted to public school instruction as in other portions of the country there shall come to be very soon a feeling of some necessity and that this moral influence shall rise rather than fall. If we should give to any State so that it should weaken its own funds and cut its own sinews for developing within itself the power of self-perpetuation of a great system of education, we could not be doing a greater national harm than by appropriating money for that purpose. There can no greater national good come by the appropriation of any money than by securing in each particular State such an enthusiastic approval and support of public education that when the fund is exhausted there shall rise up a sentiment which shall supplement any and all funds by generous contribution larger and more valuable than has come from any source whatever hitherto. Hence I believe that we should adopt a plan which should be perhaps a rising and a falling scale with reference to appropriations, so that when you come to drop off the appropriation there will not be felt such a great loss as would naturally come from jumping down a great precipice from a large appropriation to none at all. It seems to me that we should rise and fall, or perhaps commence with a large sum and go down to a small one. Whether you should begin with a large sum, as many of the bills provide, $15,000,000, $14,000,000, $13,000,000, $12,000,000, or $10,000,000, and whether the States can appropriate a large amount at first, or whether you should begin with a small sum, gradually rising to the maximum rather than to proceed by diminution to a minimum, requiring the States under the circumstances to raise an equal sum, but under the minimum scale to require the States to have a maximum or increasing scale, so that there shall be no deficiency and falling off, is one of the questions for the solution of which wisdom and statesmanship are required.

The CHAIRMAN. What is about the amount per child expended in education by Massachusetts?

Mr. BICKNELL. I think it is $8 or $9 per child.

The CHAIRMAN. I have seen it claimed that it was twenty odd dollars.

Mr. BICKNELL. In Boston it is twenty odd dollars, but not in the whole State. I have not seen the figures lately. I am under the impression that it is about $10. In the city of Boston it is $26 per scholar.

The CHAIRMAN. I think I have seen the statement that it is $22.50 in the State at large.

Mr. BICKNELL. I should judge that estimate would be too high, because in the city of Boston it is $23 or $24 now. I am not quite familiar with the figures.

The CHAIRMAN. In many of the States the school taxation is now quite small, and they are not in a condition to increase it at once. They lack the means to some extent; they lack perhaps among the masses of men an appreciation of the necessity of the school system itself; but as a rule I think they are taxing themselves all that they can in the poorer States at present. Their material wealth, however, is rapidly increasing. I understand your point to be that you would so give this national aid as to develop a local feeling which would perpetuate the institution without national aid ultimately.

Mr. BICKNELL. Precisely so.

The CHAIRMAN. So that with the developing sentiment and the developing capacity for taxation the local community may come to do in

the end all and more than it is expected now to accomplish by combining State and national effort together?

Mr. BICKNELL. Entirely so. It seems to me that is the spirit which would be fostered by such a bill.

The CHAIRMAN. You allude to the sum of $15,000,000 distributed on the basis of illiteracy. That would give only about $3 in combination with existing State taxation in those States needing it most; so that if you would reach the evil that actually exists it might be necessary to start with such an amount as that and going higher to $20,000,000, $25,000,000 or $30,000,000 and then receding. Whether that would be judicious might be the question that you wish to present, but I want to get your idea as to the lowest sum you think we could well commence with.

Mr. BICKNELL. I will say that in the Commission that has considered this matter (and we have had several sessions since our adjournment in September) our plan was to divide a sum, amounting, I think, to about $65,000,000, on the basis of the school illiteracy simply.

The CHAIRMAN. Dividing a total of $65,000,000?

Mr. BICKNELL. Yes, sir, giving $4 each.

The CHAIRMAN. For what length of time?

Mr. BICKNELL. Twelve years.

Senator GEORGE. Sixty-five million dollars per annum?

Mr. BICKNELL. No, sir, $65,000,000 in a sum total.

The CHAIRMAN. Have you made an investigation to see how much tangible good that would give to each illiterate at present?

Mr. BICKNELL. Yes, sir. It is our plan, if you will allow me to read a single section from this suggestive bill that was drawn up here, that for the first, second, and third years there shall be $4 per illiterate appropriated to each State; for the second three years, the fourth, fifth, and sixth, $3 per illiterate; for the seventh, eighth, and ninth, $2 each year per illiterate; and for the tenth, eleventh, and twelfth years $1 each per illiterate.

The CHAIRMAN. The illiterate does not represent a scholar who needs to be educated by any means. You do not want to educate simply the illiterates, but you want to educate the children.

Mr. BICKNELL. Precisely.

The CHAIRMAN. There are about 18,000,000 children in this country at the present time to be educated and who are or ought to be educated in schools.

Mr. BICKNELL. A large portion of them, however, are provided for by the various States, and they are not in special need of this aid.

The CHAIRMAN. That is very true. In the Southern States, speaking sectionally, about $12,000,000 is expended for schools at the present time, I believe.

Mr. BICKNELL. The point was, of course, that the aid should go to all scholars; but this is simply the basis of distribution, as we must have a basis of distinction. In the Territories the basis is not illiteracy, but simply the school age, because the relation of the Territories to population and material wealth is so disproportionate.

The CHAIRMAN. In all the States, in those most needing the schools as well as others, is there not already a school system which is practically spread over the entire community, with some exceptions of course, which, if made efficient, would embrace nearly or quite all the children who need education?

Mr. BICKNELL. I think so, as far as I am aware.

The CHAIRMAN. Is it not a fact that under existing taxation the

schools average in those States somewhere from two to three months in the year in length?

Mr. BICKNELL. I think so. I am not quite sure in regard to that.

The CHAIRMAN. That is the fact. Now, in order to have the condition you have stated, there must be the teacher, there must be the school-house, there must be the school-books, there must be the pupils. All those constituent elements of schools are already there, and there is money enough to run for three months, and there are about $12,000,000 spent in the States I have already designated to keep that machinery in motion three months in the year. If you give a motive power in the form of money to run those schools six months will you not have accomplished your purpose?

Mr. BICKNELL. Yes, sir.

The CHAIRMAN. Twelve million dollars does that for three months. If you make an appropriation which gives those same States, and so with the country at large, about the same amount additional, you would simply double the length of time which that machinery may continue in operation in educating children. Is not that so?

Mr. BICKNELL. Yes, sir; providing the conditions are all as you have stated.

The CHAIRMAN. That is a matter that can be ascertained by an examination of the census and other data.

Representative TAYLOR. When do you think the first appropriation ought to be made; immediately, or at a future time?

Mr. BICKNELL. I think a certain reasonable time should be given to the States to make such necessary preparation for the increased appropriation as might be necessary. Possibly in some of the States there might be an immediate appropriation, which would be ready at once. It is possible that it would be wiser, however (and my own judgment is rather that way), if Congress at this session should appropriate a certain sum, that at any rate twelve months should be given, or eight months, of notice for preparation on the part of the various States which are to receive the fund. Possibly it would be early enough to say to them that in 1885 such a fund shall be at their disposal.

My points then simply are those three, efficiency of plan, executive administration, and permanency of result; they are the three great things that seem to me to be needed and which can be secured by very careful and wise statesmanship, that we do not care to advise further concerning, except to give such suggestions so far as our commission is concerned as are contained in the bill which we present.

I thank you for the courtesy and kindness you have given me in allowing me to present this general view of the case.

REMARKS BY HON. JOHN C. SCARBOROUGH.

Mr. SCARBOROUGH. Mr. Chairman and gentlemen of the committees, I come to represent a State shown to be in a worse condition on the subject of education by the census of 1880 than any State in the American Union, and worse than any of the Territories except New Mexico. If I should forget myself and get in earnest and fail to state facts and fly off on an appeal, I hope the committees will excuse me, I representing that condition of affairs in the State of North Carolina.

I come representing a State that had a public school system organized in 1842, and a public system organized and supported by money that was taken out of the national Treasury by an act of Congress under the administration of Andrew Jackson. I suppose you all know what Mr.

academic studies were. That fund established a system of public schools [illegible] the year after I was born. I was very largely prepared for college in a private school in a log school-house. I think the school-house was about 16 feet wide by 16 feet long. I went away from that school-house and joined the Confederate army about the time I was prepared for college. It was most of it done by money out of the national treasury, but the maelstrom of war swept all that away, and swept our property away, and left us all paupers to work out our own destiny as best we could. I am here to-day representing the white people of North Carolina, who are impoverished by the results of the war, and representing the colored people in North Carolina who were thrown out poorer than the whites by the results of the war on their free conditions and to make their own way as best they could. I come to make a plea for them and to state the facts for both.

All the negroes who were freed as the result of the war of course the committees know represented so much money in the South. Two hundred million dollars of property was destroyed in the State of North Carolina, and the value of our lands was divided by two. That is what we had left when the war closed. We did not have three months' provisions for the people of the State on hand when the war closed. Yet with a State left in that condition, with one-third of its population colored men and absolutely non tax-payers, and the other portion impoverished beyond comparison, in 1868 those people went to work to re-establish a school system, because they had a school system in 1842 which had educated the white children of the State, and because they realized and felt the necessity of starting something that would help to educate the children as they grew up.

Is it not wonderful that that State should have done anything in that condition of affairs, when looked at purely from our circumstances financially? Yet we did do something, and it was done not by the carpet bag government, as we called it, in the days of reconstruction against the will of the better class of white people, but that was one thing in which all our white people who gave thought to public matters and had any desire for the perpetuation of republican institutions were agreed upon. That was their view about it, and they approved of the course of legislation under the constitution of 1868 in establishing this school system to enable us to go to work as best we could to repair the waste places on the subject of education. I say that all of our intelligent people or thinking people approved it, and that it was the act not of a party but of the people in 1868. I say that to show you that we have done what we could in this matter.

I want to state some facts about our present condition. We levy in North Carolina a direct school tax by the legislature of a mill and a quarter on the property, and all of our poll tax goes to the schools except that 33 per cent. may be applied to the support of the poor. In most of our counties the whole of it is applied to the schools, and the poll taken by the commissioners of the counties out of the tax levied on property in the counties for the purpose. With the [illegible] and the poll tax, we have raised, [illegible] but in round [illegible] school purposes by the direct tax, poll [illegible] When that we have succeeded at our best effort in running [illegible] We [illegible] This has been our best [illegible] which we ought to be increased to six months, and if we [illegible] six months we can educate the children in North Carolina [illegible] of six months, because our people are

eminently an agricultural people, living in the country and working on the farms, and we could work our chil iren on the farms for six months and let the children help to support the family, and then send them to school for six months and educate them at the same time.

If we are to run these schools six months in the year, then we will have to multiply the rate of tax of 1¼ mills by two, which will make 2½ mills. That runs the schools six months with a tax of 2½ mills upon the present valuation of property, and with our present poll-tax coming in it will enable us to run the schools for six months instead of three; but it will take 2½ mills. That I may be accurate about the figures, I turn to the last year for which a report has been published in North Carolina, and in which the full statistics have been received. It puts the average salary of the teachers of the white schools in North Carolina, teaching three months, at $24.11 a month.

Senator GEORGE. Four weeks to the month?

Mr. SCARBOROUGH. Four weeks to the month. Twenty days is a month by the school law of North Carolina.

Representative WILLIS. For what year is that?

Mr. SCARBOROUGH. This is for the year 1882, the last published report. For six months with the same teachers we would have to levy a tax of 2½ mills to pay them $24.11 a month. Is it unreasonable to say that the salaries of the school-teachers ought to be doubled? Is $48.22 too much? I need not say a thing to New England people on that line. If there were some of our Southern people here I might say something to them as an appeal, but put it in round numbers at $50 a month; is that too much for our teachers to receive for six months' teaching? Then we have multiplied our 2½ mills by two again, which makes 5 mills. Do any of the States in this Union tax 5 mills on the valuation of property? Yet that will be absolutely necessary if the educational question is to be met in North Carolina, and successfully met and the children educated.

Representative AIKEN. Is there a State in the Union that gives an average of $50 each to its teachers per month?

Mr. SCARBOROUGH. Yes, sir.

Representative AIKEN. What State?

Mr. SCARBOROUGH. One that just now occurs to me is California.

Representative WILLIS. California does, I know.

Representative AIKEN. I notice that the State of Pennsylvania does not give much more than half of that.

Representative WILLIS. I think Nevada is higher than California.

Mr. BICKNELL. Yes, sir; Nevada is the highest of all.

Mr. SCARBOROUGH. Being a teacher, perhaps I overestimate what a teacher ought to receive. We are very apt to think that our own professions ought to be well paid.

Representative AIKEN. I agree with you entirely. I do not think the teachers receive half enough; but I wish to call attention to the fact.

Mr. SCARBOROUGH. If we go back and put the average salary of the teacher at $25 a month for six months, in order to run our schools we would have to levy a tax on our people of 2½ mills.

Representative MORRILL. Do you count 2½ mills as a large tax?

Mr. SCARBOROUGH. I mean a direct tax by the State of 2½ mills.

Representative MORRILL. Not including the tax raised by the school districts?

Mr. SCARBOROUGH. No, sir; not including local taxes.

The CHAIRMAN. Can you give an idea of what the local tax would amount to?

Mr. SCARBOROUGH. Our general law provides that the people in the districts shall decide by vote the amount, not to exceed twenty-five cents on the hundred dollars valuation of property. Of course that law has been in operation but a little while, and the local tax for schools, except in a few of our towns, is a matter of recent date. I have no reliable figures that I could give to the committee on that point. Certainly many of our districts are thinking about it, and a few have levied taxes to the extent of the act.

Representative WILLIS. Nineteen dollars and sixty cents was the per capita of Massachusetts in 1880.

The CHAIRMAN. That includes all forms of taxation for that purpose?

Representative WILLIS. Yes, sir.

Mr. SCARBOROUGH. We are almost absolutely without the equipments except the school organization, the law, the officers appointed and at their work. What I mean by "equipments" is proper school-houses with proper apparatus for teaching. There are in North Carolina 6,243 school districts. Of that number there are 2,386 absolutely without a school-house; and until 1881, when the school law established the office of county superintendent and before we had any general supervision of our schools in the counties, and had nothing but examiner teachers, and no one ever went about the school-houses except the teachers and the children in many cases, the proportion was greater. There was one-third of the districts that had school-houses, and those were poor ones, and two-thirds were without. Our increase in the number of school-houses has been due to the improvement in our law by the establishment of the office of county superintendent of schools. We have 2,386 school districts in the State without school-houses, and those are not all colored districts. Nearly half of the districts without school-houses are white districts. There are at least a thousand white school districts in North Carolina that have not school-houses, and these school-houses would be built but for this: The people are poor; large numbers of them are not properly interested in education and do not make the sacrifices that they might make; but we have to take people as they are. Their school fund is so small that if they take the fund to build a school-house it will take two years of their school fund to put a house up, and so they would have to go two years without a school; and the committees are careful not to do that. They would rather depend on a house which they can get from some man who has it, which is not fit for a stable or anything else, and who says "If you can do with that for a school-house you can have it."

Representative WILLIS. Can you give the average value of school-houses in your State?

Mr. SCARBOROUGH. The average value of school-houses in my State, according to the last published report, is within a few cents of $94. These figures seem small to Northern people, and small to some of our Southern people, but that is the fact. Without exaggeration that is our condition. You ask, "Have your people made no efforts to build school-houses?" Certainly they have. I was in the mountain country eighteen months ago. A gentleman came to me with a subscription and said, "Well, you are up here talking about schools to us; I want you to help us to build a school-house in our school district." And he handed me a list of the subscriptions, what he had figured up to be the value of $45 on the list, and there were $2.15 in money. The balance of it consisted in a subscription of a bushel of corn; of a half-bushel of corn; of a bushel of potatoes; 10 pounds of flour; or 200 pounds of hay, &c. There was $2.15 in money out of what he thought could be

put at $45 for building a school-house. They had no money to give; they gave of such as they had, and that spirit is all over the State.

The CHAIRMAN. Have you any idea how many scholars there were in that district?

Mr. SCARBOROUGH. No, sir, not in that particular district; but from my recollection of the district, as I rode through it in a hack, I would conclude that from the people living there there would be forty, forty-five, or fifty children in the district.

Representative TAYLOR. What size are your districts generally?

Mr. SCARBOROUGH. Our districts are, as near as we can get them without crossing mountains and streams, four miles square—four miles across each way.

The CHAIRMAN. Sixteen square miles?

Mr. SCARBOROUGH. Yes, sir, 16 square miles. That is our condition; and I come here to say to the gentlemen representing the people at home, to those legislating for this great Government, that we absolutely cannot better it without help.

The CHAIRMAN. With your increasing population, are matters growing better or worse?

Mr. SCARBOROUGH. They are growing better; but I think that one-third of our people are almost entirely and absolutely non-taxpaying. One-third of the people belong to one class; and it is a class of people with whom I have a great deal of sympathy, and for whom I have done the best I could, though differing from the large part of them with reference to politics. My office is not a political office; I have never made it one. That class of people need to be helped. It is no longer a question as to whether they can be educated; it is no longer a question as to whether they can be made better citizens by education. We need not stop here to inquire whether they will ever reach the degree of civilization the Anglo-Saxon can reach. We have already reached the conclusion that the negro can become a better man, a civilized man, a Christian man, through the influence of education and the teachings of the Bible. We have already found that out.

Representative TAYLOR. Do you think if we appropriated about what is embraced in the average of these bills, which you have seen I presume, and permitted a small portion of it to be applied to the construction of school-houses, that it would be safe to say your State would be able to carry a school through at six months at the minimum, and make that one of the conditions? Would it be safe to fix six months?

Mr. SCARBOROUGH. Taking $15,000,000 as the amount to be distributed, North Carolina's part of that on the basis of illiteracy would be about $1,200,000. Heretofore we have had $500,000, and have had to meet all the expenses of the school system out of that. If we could run three months with the money we have had, with $1,200,000 I think we could pretty safely run six months, and improve the selection of our teachers and their condition very much.

Representative MORRILL. Would your people raise $1,200,000 if we appropriate $1,200,000? That is Mr. Willis's bill, as I understand it.

Mr. SCARBOROUGH. No, sir; there cannot be $1,200,000 raised in North Carolina by taxes with any degree of certainty by poll, State and local taxation. In the present condition of our people that cannot be done.

The CHAIRMAN. But you would expect within a few years that you might raise as much as you would receive from the General Government?

Mr. SCARBOROUGH. I should *think* so.

The CHAIRMAN. But at first you say you cannot do it?

Mr. SCARBOROUGH. No, sir; it cannot be done.

Mr. PAINTER. Would it not be better to begin with a smaller sum and work up?

Mr. SCARBOROUGH. I think it would be decidedly better to begin with a larger sum, and if you work either way work down. I want to state to the committees that I think whatever is appropriated (and I think it is the duty of Congress to appropriate; that however is a matter for Congress; I am just presenting facts) ought to be appropriated as a stimulant rather than as an intoxicant. What I mean by that is, that which will stimulate our people to greater effort instead of making them satisfied with what they are getting from the National Government, so that they will sit down and do nothing. I think that idea ought to be kept in view. I am confirmed in that opinion from my experience of the management of the Peabody fund. It was a wise provision of the board of trustees of the Peabody fund to make it stimulating and to require certain conditions on the part of the people of the town wherever they saw fit to put money before they should receive it.

Representative WILLIS. They helped those who helped themselves.

Mr. SCARBOROUGH. Yes, sir; I think some of their provisions were unwise, but that general idea running through the system was a wise one. It stimulated and greatly helped localities in North Carolina that now have a good school system, but which would not have had it if it had not been for that idea in the Peabody regulations.

Representative WILLIS. I should like to ask a question which has been raised in our committee, and that is whether the colored population show a willingness to avail themselves of the benefits of education. What is your experience in your State as compared with the whites, do they or do they not?

Mr. SCARBOROUGH. I wish to be understood as not striving to misrepresent the whites, but to state a simple fact as it has come under my observation in over seven years as State superintendent. Take the negro and put him along with that class of whites who are on a level with him in intelligence and in opportunities, and he is a great deal more interested in the question of the education of his children than the whites have been. I account for that in this way: It is for the negro a new thing. In slavery times, as you are aware, the negroes were prohibited from learning to read, although many white men taught their slaves to read. The height of their ambition was to learn to read like young master and old master did; and since they were freed they have remembered the desire that they had, and they are anxious to give their children the opportunities of education. I have seen negro children all over the State, here and there, going to school in such garbs as the white children would not appear in, and it was not because the parents did not want to put them in a better condition, but because they were absolutely unable to do it. They would have a long shirt on, reaching perhaps half way down the legs, and nothing else, with a piece of ash cake and broiled bacon—not bacon, but pickled pork—for their dinner. I account for it on this ground: The white people who are without the privileges of education, and whose children are not educated, and who are keeping their children at home without education, have been so long without the benefits and privileges of education that they have reached a state of stupor which it is hard to get them out of. If the negro is allowed to remain in the condition in which he is much longer he will be brought to the same condition. If before this interest in the education *of his children* can die out his efforts are stimulated he will keep on

but if he is allowed to remain too long he, too, will grow slack on the subject and forget his interest in it, and make of his child a slave instead of making him, as best he can, a good citizen of a Government that he loves above all things in this world. The United States Government is that which is loved by the negro above all earthly considerations and all things.

The CHAIRMAN. I should like to ask if you do not find a rapidly increasing interest among the masses of the white population in the common schools?

Mr. SCARBOROUGH. I do, sir.

The CHAIRMAN. I have been very much struck with that. To my mind the great danger is not lack of education to the negro, but to the white man. I think myself of the white people somewhat in this country.

Mr. SCARBOROUGH. I represent the whites, too. I prefer the white man to the colored man, and I am here representing the whites of North Carolina, who are in a bad condition, and I am here to make a plea for them. The truth is I do not believe the United States Government will ever discharge its duty to the negroes or to the whites of the South until it comes to the rescue and helps us in this critical moment of our existence to lift up and elevate the citizenship of this country so as to make the State governments safe and the National Government safe with intelligent voters. There are 145,000 illiterate voters in North Carolina who do not know the letters of the alphabet and cannot read or write. That is more votes than Mr. Tilden received in North Carolina in 1876, and he received the largest vote that any man ever has received in the State. It is more than our most popular public men have ever received at any popular election in the State. One hundred and forty-five thousand of our voters cannot read the ballot they cast, and cannot read the New Testament.

The CHAIRMAN. You do not mean that those men all voted for Mr. Tilden? You do not put it on that ground?

Mr. SCARBOROUGH. No, sir; not by any means. The most of that class voted for the other side. There are, however, 58,000 Anglo-Saxon men in North Carolina who exercise the right of suffrage who cannot read the ballot they cast, and who have to get somebody else to select their ballots for them.

Representative MORRILL. In regard to the normal schools would it not be better that a considerable per cent. of this money should be appropriated to fitting teachers? Is it not the first thing to do to get good teachers?

Mr. SCARBOROUGH. I think so; I think it would be wise that a very considerable sum should be used to prepare the teachers. North Carolina has spent $8,000 a year since 1876 for the education of teachers especially, besides putting a provision in the school law allowing the county boards of education to apply $100 a year from the county fund for the conducting of teachers' institutes and the preparation of their teachers. Under that provision there has been, in addition to the $8,000 spent by the State, as much as $3,200 spent by the different counties, making $11,200 spent for the preparation of teachers.

REMARKS BY HON. H. C. ARMSTRONG.

Mr. ARMSTRONG. Mr. Chairman and gentlemen, I do not propose to make any speech. I come before the committee simply to say that the people of Alabama feel a very great interest in the proposed legislation

by this Congress. We are extremely anxious that some action shall be had and had early. We have grappled with the mass of ignorance in Alabama to the best of our ability, and have satisfied ourselves that we are unable by our own exertions to manage it.

My friend, Mr. Scarborough, of North Carolina, said something about the poverty of his people. We have been poor and are not yet rich, but we will have, I think, in a very few years, one of the richest States of all the South. What we need is temporary aid. I desire to state that Alabama appropriates for educational purposes five-elevenths of its entire income. Its income is about $1,100,000, and $500,000, in round numbers, and something more, is spent for educational purposes. We think this is doing quite well.

There is another fact to which I desire to call the attention of the committee, about which there seems to be some hesitation on the part of Congress and its committees, and that is that in granting this aid our people may not be prepared to receive and to disburse it efficiently and beneficially. We have in Alabama all the machinery that runs a public school there for eighty days, or four months of the year. We have in those schools, in the main, good teachers. I wish to state in this connection that Alabama has appreciated for a number of years (certainly for the last fourteen years) the necessity of normal schools for the training of teachers, and we have been expending about $20,000 a year in that way. We have for the whites three normal schools, in which we expend about $15,000. We have for the blacks or colored three normal schools. One of those has been in existence ever since 1868, and in those schools about $9,000 a year is expended. At a colored teachers' State association held in Alabama last spring, Dr. Mayo, of Boston, was there, and I suppose there were present at least three hundred colored teachers of colored schools. Dr. Mayo told me that he had not met so intelligent a body of colored men south of Washington. Nine-tenths of those negroes were educated in Alabama, and they are teachers in our public schools there.

So far as the machinery is concerned, we have it, and all we need is a little money to lubricate it and make it run more smoothly and more continuously. We run the schools, as I stated, approximately, four months. If we can get this aid we can run the schools four months more, and that is certainly very desirable with our people.

In the State of Alabama we make no distinction. The school fund is apportioned on a per capita basis. Every child in Alabama, white, colored, yellow, or anything else, gets the same amount of money; and I think there has never been any complaint, so far as I know, of the administration of the educational affairs of the State from any class of our citizens.

Some question was asked as to whether it was thought best that Congress should take action at this session. Speaking for myself and my people, I most emphatically say yes, we need it, and we will never need it worse than now. Ten or twelve years from now perhaps Alabama would not want any of the money; she would not ask for any, and would not probably receive it, but to-day we do need it and we need it badly.

Representative TAYLOR. The question was not as to the passage of a bill, as to fixing the time when the appropriation should be paid over to the State.

Mr. ARMSTRONG. One part could go into effect as quickly as it could be done is my answer to the question. I desire, so far as Alabama is concerned, and so far as my information of the other States goes, to dis-

abuse the minds of the committees of the idea that we are in a chaotic condition there. We have a good system of public schools in Alabama and we run them efficiently four months of the year. We cannot run them longer with the means we have at command.

Representative WILLIS. What proportion of your school population are now in attendance on the public schools?

Mr. ARMSTRONG. I shall have to answer approximately, for I unfortunately happen to have no printed report. The school population approximately is 400,000, and my recollection is that there may be 210,000 enrolled of the 400,000, and there are in actual attendance probably 175,000. These are approximate figures; I cannot vouch for their accuracy.

Representative WILLIS. That is about one-half. Is it not probable if you have greater facilities and more school-houses a larger per cent. of school population would be in attendance even on the four-months' schools?

Mr. ARMSTRONG. There can be no doubt of that.

Representative WILLIS. What is the size of your school districts in the country?

Mr. ARMSTRONG. Thirty-six square miles, townships.

Representative WILLIS. You could then reduce the size?

Mr. ARMSTRONG. Yes, sir.

Representative WILLIS. What is the average value of the school-houses in Alabama?

Mr. ARMSTRONG. Although I have endeavored to get it from the county superintendents, I cannot approximate the value, but I would state in a general way that the school-houses are usually very inferior and just such as may be thrown up by the community in a sparsely settled country. They have very little value.

Senator CALL. Log houses cost about $60.

Mr. BICKNELL. I notice that the value is estimated in the census at about $200.

Mr. ARMSTRONG. That beats North Carolina then. I am glad to know that they are so valuable.

Representative TAYLOR. Are the normal schools you speak of supported by the State open to both colors?

Mr. ARMSTRONG. They are separate; the races do not attend the same school; our school law provides for separate schools for the races.

Representative TAYLOR. How much does the State appropriate for the normal schools?

Mr. ARMSTRONG. Nine thousand dollars for the colored normal school.

Representative TAYLOR. How much for the white normal school?

Mr. ARMSTRONG. Twelve thousand dollars.

Representative TAYLOR. Then that is supplemented by the county appropriation?

Mr. ARMSTRONG. Yes, sir; in our State all the aid granted by the Peabody fund was very wisely appropriated to the support of those normal schools.

The CHAIRMAN. How much does Alabama receive annually from the Peabody fund?

Mr. ARMSTRONG. Five thousand dollars, $2,000 of which is expended at Nashville in ten scholarships for young men and women who are appointed by the State superintendent and sent there. The school there continues eight months, and these young men and women receive $25 a month. Then we get $2,000 for our school at Florence, which is a

white school, which is also given out in scholarships, and $1,000 at Marion and $500 at Huntsville, the colored normal schools.

The CHAIRMAN. Do you know the amount of money distributed by the Peabody fund annually?

Mr. ARMSTRONG. I do not, Senator.

The CHAIRMAN. It is given in about the same proportion to the States where it is distributed, is it not?

Mr. ARMSTRONG. I think they base it somewhat on population. I know that Georgia gets more than we do; I suppose in consequence of the larger population in Georgia.

Representative TAYLOR. That fund is confined wholly to the South?

Mr. ARMSTRONG. Yes, sir.

The CHAIRMAN. It is no substantial help except as it stimulates somewhat and improves the teachers?

Mr. ARMSTRONG. It is a very great help in this way, if you will allow me to relate a little personal experience: In passing over the country I take occasion to inquire about young men and women who have some aptitude for teaching and some desire to become teachers. In one of the wire-grass counties of our State three years ago I came across a young man who was driving a log wagon. I had been told by his county superintendent that he was a very studious young fellow. He called my attention to him, and he said he would drive that wagon all day, and by a pine-knot fire he would study at night; and he asked me if I could not do something for him. I told him that I certainly could, and that I would do so with a great deal of pleasure. So I gave him one of these Peabody scholarships to our State normal white school at Florence. That young man went there. He was very poorly prepared, but he remained there two years, was unable to complete the whole course, went out and taught school in summer, and then went back and graduated with distinction; and now that young man is one of the very best teachers of our common schools. I might mention other instances of that kind where young men and women who were unable to provide for their education had been given these appointments. They are not only benefited, but the country is benefited. They go back and become teachers.

The CHAIRMAN. I did not mean by the question to disparage the significance of the fund, but there is a very indefinite idea as to the amount of contribution that goes to that fund. I think it is $50,000 or $60,000.

Mr. ARMSTRONG. I suppose it is about that amount.

Representative WILLIS. It is $60,000.

REMARKS BY J. W. HOLCOMBE.

Mr. HOLCOMBE. Mr. Chairman and gentlemen, I cannot claim to speak with authority on this matter for my State or my section of the country, as the subject of Federal aid to education in the States has not received very wide discussion with us, nor has a general expression of public opinion been elicited. That is quite natural, as our interest in the matter is indirect and the result merely of our sympathy with the conditions of sister States; but I can say that whatever expression of opinion I have observed has been favorable. The educational press of Indiana and the West generally, I think, is a unit on this subject, and with us so great is the enthusiasm for education among our thirteen and a half thousand teachers that their support can be counted upon for any measure which will in a legitimate way extend the benefit of education *to other* States; and these agencies, the educational press and the *teachers, are strong* enough to enlighten public sentiment favorably to-

wards some such measure as is now in contemplation. The great heart of the West is warm and generous, and I can say for my own State, at any rate, that the magnanimous people of Indiana will cordially approve a measure of this kind which, without transcending constitutional limitation or infringing in any way upon the autonomy of the States, shall enable the Federal Union of all the States, out of its abundant resources, to give aid to those States which, owing to the unfortunate conditions which surround them, are unable to deal with the grave question of illiteracy and danger to the suffrage.

Within our own limits we apply this very principle, and the wealth of the entire State educates the children of the entire State, without regard to the source from which that wealth is derived. We distribute upon a per capita of school population about $2,000,000 annually of the State's fund. This goes equally to all the children of the State. Thus the rich counties and the rich cities aid in the education of the poor sections of the State. Besides this, of course, a large revenue is derived from the local corporations, making our entire expenditure for educational purposes nearly $4,000.000.

The CHAIRMAN. What is the population of Indiana now?

Mr. HOLCOMBE. The last census made it a few thousand under two millions.

The CHAIRMAN. And you spend $4,000,000 for educational purposes?

Mr. HOLCOMBE. Nearly $4,000,000.

The CHAIRMAN. Do you recollect the number of your school population?

Mr. HOLCOMBE. Yes, sir. Our last school census gave us 709,000 or 710,000. Our average school year is about six months, I think.

Indiana counts herself as singularly fortunate in the development and advanced condition of the educational establishment and its endowment. We have a permanently invested fund there of nine millions and one or two hundred thousand dollars, the interest upon which is distributed for the payment of teachers' wages, together with our State tax for that purpose.

Representative WILLIS. What is the origin of that fund?

Mr. HOLCOMBE. It is derived in part from the old distribution in 1836 of the surplus revenue. A part of Indiana's share was turned into the school fund.

Senator CALL. Do you remember how much?

Mr. HOLCOMBE. I do not remember how much, sir. Besides this we have what we call there the Congressional township fund, amounting to nearly $3,000,000. That forms a part of this $9,000,000. A part of what we call the common-school fund was derived from the surplus revenue distribution, and it has been increased by turning certain revenues into the fund annually—fines and forfeitures under the criminal law.

Representative WILLIS. Can you state off-hand what portion of the $9,000,000 came from Federal sources?

Mr. HOLCOMBE. I cannot.

Senator CALL. The Congressional township fund came from the Government?

Mr. HOLCOMBE. Yes, sir.

The CHAIRMAN. But this fund is the result of a long series of accumulations?

Mr. HOLCOMBE. Yes, sir. I feel desirous, in conclusion, merely to express sympathy in this effort, and to say that the people of the Northwest would approve such a measure, although they themselves feel that they *do not specially need it.*

REMARKS BY HON. A. J. RICKOFF.

Mr. RICKOFF. Mr. Chairman, I have found here a state of conviction on the part of the committees, and the drift of the discussion that requires no intervention on my part. I find here a readiness to listen which I shall be very slow to abuse. One or two suggestions have occurred to me as of possible interest to the committees.

Last year I had the honor of appearing before the committee, and there was present then a gentleman—I do not know whether he is present to-day or not—who, it seemed to me, struck the political economy of this question very clearly and powerfully. He said he represented a manufacturing district; that supply and demand alike were both stimulated by education. If there be a key to the rapid advancement and development of this country, it is found in education. Therefore, if the development of national resources be any part of the purpose of Congress and the National Government, here they may find their most available point of attack. One other consideration has occurred to me, as the result of my experience in the superintendence of two of the largest cities of Ohio, Cincinnati and Cleveland. Within my experience I think (and I believe the experience of other cities is about to the same effect, notwithstanding the large sums of money expended annually for the promotion of the education of the children, I might except, perhaps, the city of Boston), they never have sufficient accommodations for the children; they never have funds enough to do all that is deemed desirable in those cities. In New York City, where, I think, $4,000,000 have been provided for the education of children, there are thousands of children there out of school.

The CHAIRMAN. If you will allow me, I will state that the last season I fell in with a Catholic priest on the sidewalk in New York City, and in conversation with him on the subject (he was interested in education), he told me that in his assembly district there were at least 2,500 children who never got inside of a school-house, and for whom there was no sort of accommodation if they were disposed to attend.

Mr. RICKOFF. It is true, sir. In all those cities, it should be remembered, the public funds are very greatly aided by private enterprise, private schools, gentlemen who appropriate large sums of money for the education of their children in private schools; but more than that, and a great deal more than that, by the large parochial schools in Cincinnati, for instance, where, while there are 24,000 in the public schools, there are from 14,000 to 16,000 in the parochial schools. Here is the point of that statement: What would those cities do, what could they do, as wealthy as they are, as thoroughly disposed as they are to appropriate all, and they have for years appropriated all to the education of the children that they can appropriate, if, in Cincinnati, more than 50 per cent. were added at once to the population for which they should have to provide? That is in some degree the condition of the South. They have the means of education, but fifteen or sixteen years ago there was added to their population to be educated more than 50 per cent., 100 per cent., perhaps, of those who were already to be educated, and now provision is to be made for them. It has not been done yet. It ought to be done; and what is to be done should be done quickly.

Senator CALL. I should like to hear some gentleman express his opinion as to the use of this fund for industrial education as contrasted with book education.

Mr. RICKOFF. If the question were asked of me, I should say, without hesitation, that the most careful consideration should be given to

the question how industrial education may be introduced into the schools. Will you allow me, however, to add that that careful consideration should take somewhat this direction, whether there is not in the public schools an education possible which to all the industrial pursuits shall stand in the same relation that classical culture does to the learned professions? I think a little reflection with regard to that point will show many things which may be done in the public schools in the way of manual culture, the culture of the eye and the hand, that will very greatly facilitate special industrial education. Whether special industrial education (by which I mean not the special preparation of boys and girls for any particular trade, but in the use of the hammer and the saw for boys, and the needle for girls) is possible or not I do not know; but I would say that the most careful consideration should be given to the question how far is it possible for us to introduce the education of the eye and the hand, how far is it possible for us to prepare the children of our public schools for the industrial pursuits. I deem it one of the most important matters.

Representative WILLIS. Is not the plea for Federal aid largely dependent upon the political relations of the illiterates? As I understand, the reason why the Government of the United States is appealed to is that those children will grow up and become citizens of the United States, and they ought to be able to read the ballots that they cast, and while the Government may be interested in securing education for those citizens who cannot read the ballots they cast, it may be another question whether it is interested to the extent of improving their social condition and enabling them to earn a livelihood. What is your opinion about that?

Mr. RICKOFF. There can be no question that the interest of the United States is to secure intelligence sufficient to its voters to read the ballot which they cast, intelligence sufficient, let me add, to enable voters to investigate some of the more primary and rudimental conditions of political economy which they have got to decide for themselves. As to the social and business relations of those masses of people in the South who are ignorant, for whom no provision has been made for education, I presume that we can hardly dissociate the one from the other; the social, the business, the industrial pursuits must grow with the reading of the ballot.

REMARKS BY HON. A. COWARD.

Mr. COWARD. Gentlemen, I shall make my statement exceedingly brief. I am satisfied that you need no argumentation here. I will only state a few brief points by way of announcing certain views on the subject of national aid to education as it affects my own State. By the last census South Carolina is credited with a population of 996,000 and some hundred, about 31 per cent. of which is white, the remaining 69 per cent. nearly colored. Whatever there is of wealth and material resources in the State is almost entirely concentrated in the hands of not exceeding 40 per cent. of her population, that is, taking in the entire white population and an exceedingly small per cent., probably not more than 5 or 6 or 10 per cent. at the outside (perhaps Colonel Aiken has looked more closely into the matter than I have done), of colored people who have property upon which taxes are levied. I doubt if more than 6 per cent. of the colored population pay any tax upon property. The State of South Carolina annually levies upon property a 2-mill tax specially set aside for the purposes of education in the free public schools, not for

her entire educational system, because she supports a State university and also an institution for the education of the deaf and the dumb and the blind, and gives also aid for the conduct of teachers' and normal institutes every year amounting to about $1,500; but the whole income of this 2-mill tax and the entire revenue from the poll-tax which is levied upon all voters less than fifty years of age is turned over to the school fund.

The State of South Carolina has a little over 30,000 square miles of area. It is less than 34,000, as it was formerly believed. You will observe that the ratio of population to area is just about thirty per square mile. The habits of the people, as you are well aware, are largely agricultural. No other pursuit is followed except in the cities, where we have professions and trades and mercantile pursuits. In our cities the difficulty of educating our youths is largely diminished by co-operation. In the rural parts of the State the difficulties are increased, first, by the sparseness with which that population is distributed, and by the additional fact that from the social condition of affairs in our State we are obliged to open two schools, one for white and one for colored, in every community. If you will bear in mind how small a portion of the people have to pay this tax upon property, and how sparsely settled our rural population is in our counties, and the necessity for having two schools, you can easily understand how it is that although this tax is so large only four months of a school session is possible thus far in our State.

We have about 3,264 schools in the State, with about 3,600 teachers, some few over. The utmost that we can do in the way of paying teachers is an average of $26.73 per month for male teachers and about $25 for females. The extremes of our teachers' pay runs from $63 in Charleston down to $15 in some of the counties; I mean the pay of those holding certificates as teachers. We are compelled frequently to employ a large number of those who are unable to pass the examinations, and we give them simple licenses to teach for one session or one term, as we call it in our school language at home. So that the difficulty with us is to get good teachers for the four months at $26, which is not a salary to support a man of any ability with a family for an entire year. It is scarcely a sufficient salary for a young woman without any incumbrances in her living. Yet I do not see how we are to improve in this respect with the circumstances around us. We have been battling with it very manfully.

A calculation was made a few nights ago showing that the State of Massachusetts devotes $1 to education for about $400 of property that she possesses. A similar calculation will show that South Carolina devotes $1 for her free public schools for every $250 of property. It is impossible that this tax could be enlarged.

This is not the only difficulty; there remains something beyond that. The white people have so long borne the burden of this taxation that there is still some disposition in all parts of our State to question the justice of so small a portion of the community contributing to the support and the education of all the remainder. There is that disposition; I state it frankly. Colonel Aiken is aware of the fact. Understand me, gentlemen, the people of the State, at heart—the thinking men of the State—are not at all disposed to go back upon this matter. The State is fully committed to the support of popular education, and I think I may truthfully say that upon that ground she intends to follow the motto, *nulla vestigia retrorsum*. She has no idea of going back, but she can only look forward to the long vista of years in which to accomplish all the good she desires to accomplish in eliminating illiteracy

from within her borders. We aim, in our public-school system, not to complete the educational ladder with one foot in the gutter and the other in the university. We only hope to complete and make strong, permanent, thorough, and efficient the first six or eight rounds, which may be named, reading, writing, geography, history, arithmetic, and a knowledge of the fundamental principles of law. If our public-school system can accomplish that we should be satisfied with the result.

So far as the white people are concerned, they have always had a proper appreciation of education. Previous to 1860 South Carolina needed no public-school system. Her people educated their children. The slaves, of course, were not educated; it was not intended they should be. Our social condition required that they should not be educated; but things have all changed now, and though that disposition on the part of the whites to educate themselves still exists, as is now manifested by their supplementing in various parts of the State the free-school fund for the education of their children and for continuing the school sessions longer than the public-school funds can run, I say that is still manifest in the State; but this large population that has been thrown upon their own resources and who stand upon an equal plane of citizenship must be looked after, and our whole school fund is divided without regard to race strictly upon the per capita of school attendance.

The CHAIRMAN. Do you say upon the per capita of school attendance?

Mr. COWARD. Upon the per capita of school attendance in this way: Each county is divided into a certain number of school districts. The incomes of the 2-mill tax is apportioned by the county school commissioner to each of the school districts in his county according to the attendance of the preceding year as ascertained by the preceding year.

The CHAIRMAN. Without reference to the number who should have attended if there had been the opportunity? Without reference to the number of pupils needing instruction?

Representative AIKEN. Without reference to population.

Mr. COWARD. There is no reference to population. That is the only way we could reach it. The idea was, I presume, to stimulate every community to make as large a school showing as possible, so as to get as large an amount of the public funds as possible in each district. Of course, it does not affect the counties; each county raises according to its strength, but it affects the distribution in the subdivisions of the county which we call school districts. That is, of course, ascertained by per capita lists.

Representative TAYLOR. Does that plan work well in your State?

Mr. COWARD. It works pretty well. There may be some other plans that would work better. I found it in operation when I took charge of the office. My predecessor seemed to have no difficulty about it. It was the best we could do under the circumstances.

Senator CALL. It is the only system practicable anywhere. The State cannot pay for children who do not go to school.

The CHAIRMAN. But suppose there is no opportunity to attend and no reason why they should go? The difficulty which occurs to my mind is that in a district without schools they would hardly be able to attend under such a system.

Representative AIKEN. There is the same facility for schools all over the State.

The CHAIRMAN. I do not like to have the point obscured. I understand the gentleman to say that they distribute the money one year upon attendance in the districts according to the preceding year.

Mr. COWARD. Yes.

The CHAIRMAN. The object thereby is to stimulate attendance.

Mr. COWARD. Let me interrupt you for one moment, and you will understand the whole thing better. By our fiscal system we are just about one year behind in our tax levy; that is, all appropriations made for one year are to be paid out of the taxes that are gathered during the year, yet they are never gathered until the last part of the year, about November, and our school year has terminated before the time has arrived for making this apportionment.

Senator CALL. Suppose there were no children going to school the year before, would they be prohibited from having any part of the fund because nobody attended school?

Mr. COWARD. In the district?

Senator CALL. Yes, sir.

Mr. COWARD. That case has never occurred. There is no district in the State that has not from two to ten schools; some districts have as high as twelve.

Senator CALL. If it had occurred, of course as provision is made wherever the children attend school there is nothing in the law to cover such a case.

Mr. COWARD. No, sir; this money is left in the hands of trustees. There are three trustees in each school district.

Senator CALL. The law simply provides for ascertaining from the attendance at the schools what the amount shall be.

Mr. COWARD. It simply fixes that mode to arrive at a calculation.

The CHAIRMAN. Suppose there are two districts, each having one hundred scholars this year. One has a school-house and accommodations, and the other has not. There are ten children who attend in one district and suppose that there are ninety who attend in the other. The necessity is greater where there are the ten than where there are the ninety attending, but as I understand you, the school district well supplied, will get nine times the amount of money that the district which has comparatively no school facilities and no school attendance.

Mr. COWARD. I do not understand your statement clearly.

The CHAIRMAN. Suppose two adjoining districts, each with one hundred children who should attend school. This year ninety attend in one district and ten children attend in the other district. The year to come the district having ninety in attendance will get nine times the amount of school money that the district with ten in attendance will get.

Mr. COWARD. That is the working of the law.

The CHAIRMAN. The object is to stimulate attendance in order to get the most money?

Mr. COWARD. Yes, sir.

The CHAIRMAN. I can see that would operate all right where the facilities for attending exist, but where the system is imperfectly established, where there is a lack of school accommodations, possibly the lack of a disposition to establish and promote a school, the district having the greatest necessity would be likely to find that necessity prolonged and perpetuated by the system itself.

Mr. COWARD. A strict construction of the law might lead possibly to something of that kind. It never has done so, however. Our county board of examiners or the county school commissioners lay off the districts with reference to a proper location of the schools. They put the schools where they are within reasonable reach.

The CHAIRMAN. Of course the principle is to put the money where the illiteracy is, to direct the forces where the enemy is intrenched. It

seems to me your system acts upon directly a contrary principle as a theory.

Mr. COWARD. In the matter of school-houses particularly we are very needy. In our cities the houses are generally comfortable; in the counties, in other parts of the State, it is otherwise.

The CHAIRMAN. Does not that strengthen the suggestion very much that I make? Of course nobody can attend school without a school-house or some accommodation; therefore it seems to me that your system is quite faulty in that regard, that your theory is wrong. You should put the more money where the greater necessity exists.

Mr. COWARD. With schools open in a district, if but ten out of a hundred can be brought into the schools, why should you give that ten more money than you give to the adjacent district which has ninety of its hundred children going to school?

The CHAIRMAN. I admit that your theory is all right where the facilities already exist. If the people will not improve their facilities let them go. If we give ten years or a reasonable time so that all the people of this country will have had the opportunity to understand and appreciate the common schools, and if at the end of ten years they do not support them let them go. I would rather take the "heathen Chinee" instead of them; let the country fill up with vagabonds and heathen if any community will not take care of its schools after once they have had a fair opportunity and a fair start. If you had the facilities already I think your theory would be all right.

Mr. COWARD. That is the plan fixed, as far as a sense of justice and interest, keenly alive to the true needs of the population, could guide, direct, and enable us to pursue a certain course. Of course, you will understand that there are certain dark corners in nearly every county that it is almost impossible to provide with full school privileges, where half a dozen scholars only can be brought together. It will not pay to employ a teacher for three or four months for that half a dozen. We try to stretch them over in other neighborhoods, so that our schools are not at all distributed with a view to equality of area, but with a view to meeting the actual necessities of the case, according to the population of the State.

The CHAIRMAN. I know your State has made extraordinary exertions, and is, I think, doing as much, if not more, than almost any other State in proportion to its ability at the time.

Mr. COWARD. In regard to the matter of efficiency of schools, I would say that the cities are fairly well supplied, some of them admirably well supplied. The large cities, for instance, Charleston and Columbia, have good school buildings, but out in the rural sections is the real great want. The policy has been to use up almost entirely, or as far as possible, the whole income of our school-fund for the purpose of actual teaching. The mere providing of the school-room has been a subordinate consideration, so that the State does not own all the school buildings that are in use as school-houses at the present time. Some of them are church buildings; many of them are exceedingly inferior in construction, uncomfortable, ill-provided with furniture of any sort; but it has been thought best to keep the schools open as long as it was possible to keep them open and the money would last, rather than to spend one dollar upon the furniture and such matters that might possibly be dispensed with.

In reading over the reports of the county school commissioners I see that this subject is generally commented upon. The desire now is to get better school buildings all through the State, for there is an educating effect in a good school-house, neat, attractive, well furnished, and

comfortable. It interests the whole community in the neighborhood; it is attractive to the children, and they are pleased to come to school; but put them in the forbidden buildings that we have frequently to make use of and school-time is a moment of terror to a very large portion of our pupils, colored as well as white.

Representative AIKEN. What months of the year do the free schools keep open in South Carolina?

Mr. COWARD. There is no uniformity for it. You see the up-country habits are quite different from the low-country habits, along the seashore. Most of the schools open in November and December and continue, if possible, until cotton-planting time. Then they are suspended until cotton picking is over. In some communities there is an interregnum between laying-by time and cotton-picking time, in which the schools are open again if they have any funds left to their credit.

Representative AIKEN. The reason why I asked the question was to get from you what I thought would be a satisfactory answer to the chairman's inquiry as to ten against ninety. Your schools open in winter; the taxes are collected and the funds are distributed at that same time. So that the calculation that you make upon the number of attendance in the fall is paid for at the very time you make the calculation.

Mr. COWARD. It is paid for at the time the calculation is made.

Representative AIKEN. So that it is not paying this year for last year's attendance, but it is paying in November for the children of that very year, because the taxes are collected in the fall.

The CHAIRMAN. It was the basis of distribution I had in mind. The money, I see, comes in advance, and is in readiness whenever the expenditure is needed.

Representative TAYLOR. Do you think the fund should be applied in part to the erection of school-houses, or should all be applied for the purpose of paying teachers?

Mr. COWARD. You refer to the proposed Congressional aid?

Representative TAYLOR. I refer to any appropriation the Government may make.

Mr. COWARD. That is not at all material. If the limitation should be put in the appropriation that no part of it should be applied to school-houses, we would simply use our State funds to put the school-houses in good order and would use the Congressional funds for paying teachers. We would get around the difficulty very easily in that way.

Senator CALL. What would be the average cost of a good school-house for an ordinary country neighborhood in your State?

Mr. COWARD. For a school with an average attendance of forty pupils, I think the school-house could be built for from $900 to $1,000.

Senator CALL. Of what sort of material?

Mr. COWARD. Wood.

Senator CALL. Would it cost that much?

Mr. COWARD. Including furniture and everything else. We usually build them two stories high.

Representative WILLIS. Do you mean that your country school-houses cost from $900 to $1,000 in South Carolina?

Mr. COWARD. I am only making an estimate.

Representative WILLIS. What is the actual fact now?

Mr. COWARD. I can give you the total, but I beg you to bear in mind that many of these buildings belonged formerly to private schools or private corporations or towns, or something of that kind, and their

value was very great. I will give you the total value of school property in the State and how much it was increased last year.

Representative WILLIS. The reason why I asked you the question was that I understood from Judge Dibble, of your State, the other day that most of your school-houses would not exceed in value $50.

Mr. COWARD. I was endeavoring to answer the question as to what good school houses could be erected for. Some of the school-houses are nothing but old log-cabins; some of them have been abandoned as residences; have no flooring at all but a dirt floor, no benching but a slab of wood rounded with sticks, and one county school commissioner informed me that last year in his visits he found one of his schools upon some logs rolled up together in the woods under a tree.

Representative AIKEN. That only shows their desire to get education.

Mr. COWARD. Not the desire of the trustees, however, of that particular school district.

Mr. BICKNELL. About $200 is the average valuation in South Carolina. There are 2,863 school-houses and the valuation is $407,000, according to the census of 1880.

Mr. COWARD. The school-houses previously erected have an estimated value of $434,366. The number of school-houses rented during the last year were rented at a cost of $3,409. There were one or two counties for which no report was made in that last item; but estimating that there were as many as 150 school buildings rented for school purposes, there remain 100 school buildings not needed in the State.

The CHAIRMAN. You are better off than in any Northern State that I know of.

Mr. COWARD. I have given you those that were rented. There are some buildings that have been used that do not belong to the State, and they were really not rented, but simply lent and used for school purposes.

The CHAIRMAN. You mean that with 100 additional school-houses you would have accommodations for the schools of the whole State?

Mr. COWARD. For all the schools that are now existing.

The CHAIRMAN. Those schools reach less than half the school population, however, I understood you to say.

Mr. COWARD. The number of school-houses erected during the past year was 104 at a cost of $39,655. Those 104 school-houses thus accounted for cover all styles of school buildings. In towns some handsome buildings have been erected, as at Pickens Court House, and in some townships only a log cabin at a cost of forty, fifty, or sixty dollars has been erected.

Senator CALL. Would you not rather have a good log-cabin for a school-house at $50 in a neighborhood where the people live in log-cabins, and have more money to give the teachers and to otherwise use than to put it all in a better building?

Mr. COWARD. We have preferred that plan to expending much of our money upon the school buildings.

Senator CALL. Would you not still prefer it in this appropriation?

Mr. COWARD. If you would look into some of those log-cabins I think you would find everything to condemn them for school buildings, from the fact that many of those we call log-cabins in our State are nothing but log pens, with one hole cut for a door in one side, with no proper lighting, and with a small aperture for a window.

Senator CALL. Cannot a good log house be built in your State for $100?

Mr. COWARD. I think so, but I think that we should erect in every

district a handsome building; when I say handsome, I mean handsome for that locality, an attractive building that the people in that neighborhood will take some pride in, that the children will like to go to, and that they will be kept comfortably in. Next to the importance of having a good teacher in a community, I certainly would rank the importance of a good school-house.

Senator CALL. That is the question I asked you, whether you rank it first or second; whether you had not better expend the money in paying the teacher than in the school-house?

Mr. COWARD. Of course I would rather give it to the teacher.

Representative AIKEN. I should like to ask you one question. You say that the State tax is 2 mills on the real and personal property of the State for the benefit of free schools. How is this money distributed?

Mr. COWARD. It is left in the county, not brought out at all.

Representative AIKEN. That is a fact I wanted to call the attention of the chairman to.

Mr. COWARD. The poll-tax is credited to the district in which it is raised. It does not form a part of the particular fund over which the school commissioner has any control.

The CHAIRMAN. Each county gets all the money that is raised in its borders, either by State or county action?

Mr. COWARD. Yes, sir; the poll tax is credited to the district in which it is raised.

The CHAIRMAN. How many districts are in a county? Of course, they differ according to the size of the county, but give me an idea as to the number.

Mr. COWARD. There has been no uniformity in the divisions. In the larger number of our counties the district divisions coincide with our township divisions, but in some the boards of examiners have found it best to make other arrangements. In Orangeburg County they have fifty-two school districts. A white school and a colored school constitute a school district. The great difficulty in many of the counties is to get a sufficient number of intelligent, public spirited citizens to act as trustees, who will take the trouble, because it is an unpaid office, its chief reward being the censures of the community if they are not entirely pleased with the trustees.

The CHAIRMAN. Can you not give us some idea as to how it is in the rural districts with reference to the nearness of the school-houses to each other, so as to show how far the pupils have to go to attend school—those who go farthest?

Mr. COWARD. The State is so unequally settled that it is very difficult to get at that. You can take the figures I gave just now, 2,300 schools, in round numbers, to 32,000 square miles. That gives you more than one school to every ten square miles.

The CHAIRMAN. But the schools are not distributed with reference to geographical location, I suppose?

Mr. COWARD. They are distributed rather according to the centers of population.

The CHAIRMAN. There must be a great many children who would have to go a great many miles to attend school at all?

Mr. COWARD. Yes; some as far as five miles, but the effort has always been made to reduce the distance. Of course, as I mentioned some time ago, there are cases of hardship that are entirely unavoidable.

The CHAIRMAN. Do you know instances where children walk five miles to attend school?

Mr. COWARD. They walk or ride. That is considered the limit. If the distance is over five miles we cannot consider that the school is of any benefit to that particular neighborhood; it is beyond the reach of the children.

Before closing, if the committee will permit me to show that the people of South Carolina have an interest in this matter, I will read to you the enrollments that have taken place since the adoption of our public-school system. This is a new thing with us. It has been only introduced since 1868 and was put in active operation in 1869.

In 1869–'70, the first year, there were 30,848 children enrolled; in 1870 '71 there were 66,056; in 1871–'72 there were 76,322; in 1872–'73, 85,594; 1873–'74, 100,719; the next year 110,416; then 123,085; the next year 102,396, a falling off of over 20,000 in consequence of political agitation in the State in that year; then in 1877–'78, 116,239; in 1878–'79, 122,463; in 1879–'80, 134,072; in 1880–'81, 133,458; in 1881–'82, 145,974; and last year, 1882–'83, 173,095, being an increase of over 27,000 in that year's enrollments.

Senator CALL. What is the relative increase of population?

Mr. COWARD. I have forgotten the percentage of increase as calculated for our State.

Senator CALL. It is very considerable, I know, by the census.

Mr. COWARD. We of our State are very well satisfied that the census of 1880 is very inaccurate.

Representative AIKEN. There was an increase of 250,000, according to the census, from 1870 to 1880. Other gentlemen here have stated the aggregate amount of the school fund for North Carolina, Alabama, &c. What is the aggregate in South Carolina?

Mr. COWARD. In South Carolina for 1881–'82 the public-school fund of the State was $471,000; for 1882–'83 we will not ascertain before April when all county treasurers make their final accounting with the comptroller-general, but I am satisfied the showing will be nearly $495,000.

Representative WILLIS. Either prior to the war or since has there been any permanent school fund in South Carolina derived from Federal sources?

Mr. COWARD. None whatever until after the war, when of the Agriculture and Mechanical College scrip South Carolina got $181,000. It is constructively in our treasury. Where it is we will have to find out from Mr. F. J. Moses and others; but the State pays interest upon that amount regularly every year, and it is divided between two colleges, the South Carolina College for whites at Columbia and the Claflin College at Orangeburg.

The CHAIRMAN. That payment of interest is made from the 2-mill taxation.

Mr. COWARD. No, sir, it is made from the general levy of the State, just as the support of other institutions in the State is made from the general appropriation. The 2-mills tax and the poll-tax form a special reserve tax over which the State government exercises no control whatever; it is left in the county funds for the purposes of public school support and for nothing else.

Representative TAYLOR. Then I understand if there is a county that has twenty thousand children and there is no property in it of any account they must depend for their education on the taxes of that county?

Mr. COWARD. On the taxes of that county and the poll-tax.

Representative AIKEN. They had better move out if they have neither property nor education.

Mr. COWARD. There are some counties in which it is a hardship.

Representative TAYLOR. Do you say that is substantially the case in some counties?

Mr. COWARD. Yes, sir; I will mention Berkeley County for one, in which I think there are ten colored people to one white man, and the tax of course comes off the one-tenth almost exclusively, and that cannot go very far. That county, however, has been able to run its schools last year two and a fraction months, nearly three months, notwithstanding that discrepancy.

Representative TAYLOR. Do you think that if we put a provision in the bill to the effect that your State, in order to get $1,200,000 a year, must divide its funds throughout the State equally to all the children as the other States do of which we have heard, your legislature would change the law in order to get the $1,200,000 a year?

Mr. COWARD. I do not think it would.

Representative AIKEN. They could not do that; it would require a constitutional provision.

Senator CALL. What is your constitutional provision in reference to the division or distribution?

Representative AIKEN. That is a legislative enactment.

Senator CALL. What is the legislative enactment? I understand that the school tax of two mills, which shall be raised in the county, is paid out in the county and used for the county schools.

Mr. COWARD. That is a constitutional tax?

Senator CALL. The constitution taxes the property two mills for school purposes, but does not provide that it shall be raised in the county and expended there?

Mr. COWARD. I think it does.

Representative AIKEN. The constitution requires that the money shall be expended where the tax is levied.

Senator CALL. What is the amount?

Representative AIKEN. About $175,000.

Senator CALL. What is the poll-tax?

Mr. COWARD. A dollar a head on all under fifty years of age.

Senator CALL. In the county of Berkeley, how much poll-tax do you get?

Mr. COWARD. It is a new county; I do not know.

Mr. SCARBOROUGH. I think it is unfortunate it is so, but that is substantially the school law in North Carolina under our constitution, so that our poor counties have a bad showing in the taxes collected, and I have been trying to have it remedied. In our State that works decidedly to the advantage of the colored population, because our people who are better off where our property is valued higher are the people who live in that section of the country where the colored population largely exists, and the taxes are higher by reason of more property and a higher value of property.

The CHAIRMAN. The planters and colored people live in the same locality?

Mr. SCARBOROUGH. Yes, sir; the bulk of the colored people are in the same county with the planters, and in that county it has to be distributed per capita according to the number of children.

The CHAIRMAN. In that way it is equalized?

Mr. SCARBOROUGH. Yes, sir.

Senator CALL. I understand that is the general law all through New England as to local taxes.

Mr. BICKNELL. We have one fixed quantity in some of our States.

The CHAIRMAN. But the distribution is per capita on the basis of actual attendance?

Mr. BICKNELL. The distribution of that portion is either upon the fixed quantity all through the distribution or upon the fixed quantity of population. It is a small fund.

Representative TAYLOR. Is there not a State fund divided pro rata to the children of school age throughout the State without reference to where the money comes from?

Mr. BICKNELL. It is very small now; I do not know exactly the amount.

Representative TAYLOR. In our State it is divided without any reference to what counties have paid it in.

Mr. RICKOFF. It is so in New York also.

Mr. BICKNELL. In Rhode Island, where I was district commissioner for six years, we had a school fund of $9,000 a year, divided into two parts, one part divisible by the number of districts, and the other by the school population of the State. That was divisible to the various districts and towns of the State, but the local tax went directly to the schools.

Mr. RICKOFF. The local tax everywhere goes to the schools, both in Ohio and New York.

REMARKS BY HON. GUSTAVUS J. ORR.

Mr. ORR. Mr. Chairman, I had the honor of coming before the Committees of Education and Labor some two years ago. I made a statement then in reference to the State of Georgia, which went upon record, and was published as a Senate document. In that statement I gave the facts which you have been seeking here to elicit with reference to other States. I do not know whether it would be proper for me to repeat them now.

The CHAIRMAN. It would be proper to do so, because that document is exhausted.

Mr. ORR. I hold in my hand the very thing which you asked for when we came in. You asked if we had any suggestions to make as to what ought to go into a law on this subject. I prepared very carefully a paper which contains the sketch of a law that I am sure will be acceptable throughout all the Southern States, and then, if the committee desire, I will make a brief statement about our condition and our work.

I would remark that I have delivered public addresses in over one hundred and twenty counties in my State. I am the best known man, perhaps, in the State of Georgia to our people; I know their sentiments. I am well acquainted personally with every member of Congress from the State of Georgia. I know by intercourse with the superintendents and from my knowledge generally of the people of the South what would be acceptable to them; and hence I make a statement of what, if thrown into the shape of a statute and passed by Congress, would be, in my opinion, universally acceptable through all that section. I was one of the earliest Southern advocates of national aid to education. I took ground in favor of it away back when the subject was first brought before the National Educational Association in 1870 or 1871.

Early in the month of January, 1878, a meeting was held at my office in the city of Atlanta to consider the question of calling a convention of Southern men to consider the question of national aid. A resolution was adopted calling the convention. The call was issued January 8 of

that year. Among those signing the call were Joseph E. Brown and Alfred H. Colquitt, at present Senators from Georgia; Benjamin H. Hill and John B. Gordon, former Senators; H. P. Bell, formerly a Representative from Georgia, and N. J. Hammond, one of our present Representatives; James Jackson, at present the chief-justice of our supreme court; H. K. McCoy and Logan E. Bleckley, formerly associate justices; and John L. Hopkins and George Hillyer, formerly judges of our superior court. The convention met in Atlanta on the 6th of February following.

In it were representatives from West Virginia, Virginia, South Carolina, Georgia, Florida, Alabama, Louisiana, Tennessee, and Missouri, and I might add the District of Columbia—nine States, and the convention numbered over one hundred delegates, men of mark in their respective States. Such unanimity in a deliberative body has been rarely witnessed. The preamble and resolutions submitted received the vote of every single member of the convention. As they constitute the first formulated statement of the principles which should control in this movement ever adopted in the South, and as they embody the views, so far as I know, of all the intelligent friends of public education, irrespective of party, in that section, I quote them entire:

Whereas certain measures are now pending before the Congress of the United States which propose to raise from the sales of the public lands and other sources a fund to be distributed among the several States in aid of popular education; and

Whereas these measures provide that this distribution shall be made for a term of years upon the basis of illiteracy, and afterwards upon the basis of school population; and

Whereas those measures referred to do not claim for the National Government the right to control education in the States, but provide simply for turning over the fund raised to the constituted authorities of the several States to be applied under State laws: Therefore be it

Resolved, That this convention does most heartily approve the adoption of some measure of national legislation which shall embody the principles set forth in the foregoing preamble.

Resolved, That the educational wants of the Southern States are immediate and pressing, and we would suggest to Congress the consideration of the question as to whether it might not be best to distribute and apply the entire corpus of whatever funds that body, from time to time, may provide to the immediate relief of these wants.

Resolved, That as the educational laws of the several States represented by us make no discriminations in favor of or against the children of any class of citizens; and, as those charged with the administration of these laws have endeavored in the past to have them carried into effect impartially, so do we pledge ourselves to use our influence to secure even-handed justice to all classes of citizens in the application of any educational funds provided by the National Government.

Resolved, That a committee, consisting of the president of this convention, and fifteen members and fifteen alternates—one member and one alternate to be selected from each of the Southern States—be appointed by the president of this convention to memorialize Congress upon the subject set forth in the foregoing preamble and resolutions.

Resolved, That we respectfully ask the immediate attention of the Senators and Representatives of the Southern States in Congress to the objects referred to in the foregoing resolutions, and appeal to them to hasten favorable action upon the same.

The committee provided for in the fourth resolution, of which he who now addresses you had the honor of being chairman, performed to the best of their ability the duty assigned them. In doing so they were careful to set forth fully and distinctly the principles upon which the Atlanta Convention had based its action.

In order to show you what firm control of the public mind these principles have held in my own State since their first enunciation, I propose to give you the action taken by three successive legislatures upon this question of national aid.

On the 12th of December, 1878, our legislature adopted and made

heir own the entire preamble and resolutions of the Atlanta Convenion, without the change of a single important word.

The legislature of 1880–'81 adopted, on the 28th September, of the atter year, the following preamble and resolutions:

Whereas, the impoverishment of the South, caused by the late unhappy war, has ade it, up to the present date, almost impossible for the Southern State governents to make anything like adequate provision for the education of the youth of the outh; and whereas, the freeing and enfranchisement of the colored race by the act f the Government of the United States has made it necessary that the youth of that ace be prepared by education for the discharge of the duties of citizenship; and hereas, the difficulties of the Southern educational problem are increased more than hundred fold by the fact that the people of the colored race, constituting nearly ne-half of the entire population, are still, to a large extent, without any property hat may be taxed; and whereas, the whole country is put in peril by the prevalence f ignorance in any part of it; therefore,

Be it resolved by the senate and house of representatives, of the State of Georgia, That he extending of aid by the General Government to the struggling State governments f the South in their efforts to build up efficient systems for the education of the lasses is eminently wise and proper.

Resolved, That we have observed with approval and gratification the efforts now being made in Congress to raise an educational fund to be distributed among the States for a term of years, upon the basis of illiteracy, and afterwards upon the basis of school population, and to be applied to educational purposes under the laws of the several States.

Resolved, That our Senators and Representatives in Congress are hereby requested to give their earnest support to that one of the measures referred to in the foregoing resolutions which is most liberal in appropriation, and which secures to the fullest extent the right of local control in the application thereof.

Resolved, That as the State of Georgia does not now make any discrimination between the races, in applying State educational funds, we hereby pledge the honor of the State to the same impartiality in applying any fund which may be provided by the General Government.

Resolved, That the governor is hereby requested to transmit copies of the foregoing preamble and resolutions to our Senators and Representatives, to be laid by them before the two Houses of Congress.

The legislature of 1882–'83 also gave us a deliverance on this subject. On the 15th December, 1882, they took action as follows:

Whereas, as a result of the late war, the colored people of the South were set free and made citizens; and whereas in the State of Georgia they were very nearly equal in numbers to the whites, and at the time of their emancipation were entirely destitute of property, and, in very large numbers, have continued so up to this time; and whereas the white people themselves were greatly reduced, many of them to a state of destitution very nearly as extreme as that of the colored people; and whereas the facts herein recited have rendered it impossible, for the time being, for this State to make adequate provision for the education of our youth; and whereas wide-spread illiteracy, conjoined with universal suffrage, has put the institutions of the whole country in peril; therefore,

Be it resolved by the general assembly of the State of Georgia, That we hail with pleasure the movement now being made in the Congress of the United States to raise a fund for distribution for a term of years among the States in aid of popular education, the distribution to be made on the basis of illiteracy.

Resolved, That the proposition to have this fund applied under State laws by the regularly constituted State authorities to the support of common schools, normal schools, and other agencies for securing an adequate corps of well-qualified common-school teachers meets our hearty approval.

Resolved, That our Senators and Representatives in Congress are hereby requested to use their best endeavors to secure the passage of an educational bill which shall be liberal in its monetary provisions, and which shall be well guarded against improper Federal interference in the educational affairs of the States.

Resolved, That as our own limited fund is applied to the education of all the children, without discrimination as to race, so shall any fund which may be furnished by Congress be applied with equal impartiality.

Resolved, That his excellency the governor is hereby requested to have copies of these resolutions made out and forwarded to Washington at once, to be laid before both Houses of Congress as early as practicable after the commencement of the approaching session.

At the interstate educational convention assembled at Louisville, Ky., in September last resolutions of similar import were adopted. One of these read as follows:

Resolved, That this convention cordially approves the principle of giving Federal aid to be distributed among the several States and Territories upon the basis of illiteracy: *Provided*, That such aid shall be distributed under State laws and by the State authorities exclusively, but with proper guarantees for its faithful application.

I have never known a more solemn affirmance and oft-repeated reaffirmance of principles than is furnished in the recital which I have just given. First, representative men from nine of the States most vitally interested speak; then three successive legislatures of one of the leading States of the South; and, lastly, a body of educators and friends of education assembled from all parts of our country. All these utterances agree in affirming the necessity of local self-control by the States, and in declaring against Federal intervention. None but Southern men can fully understand the necessity of adhering to these principles in any educational legislation that Congress may adopt. Our position is anomalous. History, so far as I know, furnishes no parallel to it. Two races occupy our territory which never can intermingle on terms of social equality. At least there seems to be no nearer approach towards such intermingling at this day than when freedom first became universal. I say nothing as to whether this should be so. Concerning that there might be differences of opinion. I state it as a great fact of history, and wise statesmanship always recognizes facts.

Again, one of these races monopolizes the intelligence, the virtue, the experience, and the property of the country to an extent unknown in any other state of society, ancient or modern, of which I have any knowledge.

Furthermore, among the superior race there is a kindly feeling toward the inferior, and a disposition to deal justly by them, to which all unprejudiced strangers who have remained long enough among us to obtain accurate information bear willing testimony.

These are the facts to guide statesmanship in settling a great question of this kind. They declare unmistakably that whatever of means Congress may furnish should be controlled and applied exclusively by the States.

They show not only this, but they show something further. They point out to the States of the South the proper policy to be pursued by them in selecting their own depositaries of educational power. In all these States boards of education should be chosen from among the most experienced, intelligent, upright men of the respective counties. This is the policy pursued in Georgia. Under that policy I have had the honor of administering the educational affairs of the State for the last twelve years, and I am proud to bear testimony to-day to the fact that the races have been dwelling together in unity, and that there has been practically no complaint of injustice. I take this occasion of affirming it as my solemn conviction that only by the adoption and sustaining of this policy can the States of the South have a sure guarantee of the perpetuity of their educational systems. By a firm adherence to it these systems will remain a blessing to the South and to the whole country.

The educational needs of the South and the great work she has done in seeking with her inadequate resources to supply those needs have often been presented. I shall say nothing of these things now. I have chosen to occupy the time you have kindly allowed me with the consideration of that branch of the subject which I know to be most vitally

interesting at this time in the immediate section of the country from which I come. I thank the committee for the privilege of thus presenting my views.

The CHAIRMAN. Will you not give us some idea of the amount of aid that you think should be provided by the Federal Government? You have studied this matter more closely than most of us, and assuming that there is a disposition to appropriate something, what do you think ought to be appropriated? Of course it will have to go to the whole country on the basis of illiteracy in order that your section of country should receive what you think would be very necessary if not indispensable.

Mr. ORR. I think that a large sum, from ten to fifteen million dollars, would be necessary to do the great work so necessary to be done.

The CHAIRMAN. That is, you need that amount yourselves.

Mr. ORR. No, I mean the bill ought to make an appropriation of at least that much. That is my judgment. I mean that from ten to fifteen million dollars per annum should be appropriated.

The CHAIRMAN. You would not contemplate the continuance of a like amount? You would expect it to diminish?

Mr. ORR. I should think it very unwise to continue it. It ought to diminish. I do not think that the States ought to be trained to reliance upon what can be done for them outside of the States.

The CHAIRMAN. Assuming that an appropriation of ten or fifteen million was made now, do you think it would be wise to increase it gradually for a period and then to recede, or what would you think about it? Give us your ideas as to what sort of law you think we had better make.

Mr. ORR. In my judgment it would be far better to give a large sum at the beginning and to diminish it regularly from year to year.

The CHAIRMAN. But there is an apprehension with many that a large sum such as you have named could not be judiciously handled immediately. What are your views and the reasons for your views on that point?

Mr. ORR. In Georgia we could make a judicious application of double the amount that would come to us, if you take into account the necessity for school buildings, though it has not been my plan to put up buildings in that way. I think that whatever Congress gives had better be directed to improving the brains instead of the houses. That has been my notion about it.

We have no houses in my State belonging to the boards except in the cities and in the towns where they have local systems. We have very good houses, though, in many places. I know a county where the people have put up some twelve or fifteen very comfortable houses, and they are doing it pretty largely in my State, in many places voluntarily building them. If I had the power to control in my State, and had the authority to enact the law, I should frame a law for my State cutting any community out of its right to the fund until they put up a house for themselves that should be sufficiently comfortable to accommodate all the children, and should be accepted as a comfortable house by the board of education. I do not think that would be a great burden. I believe I could secure houses all over Georgia in that way. The colored people could build good log houses. There was something said here about log houses. I have seen plans of log houses that were really tasteful buildings, nice buildings, and we would aid them. We would give them plans, and there is not a community in the State of Georgia that would not contribute money to help the colored people buy the

nails, the sawn lumber, the glass for the windows, and any outlay of money necessary. Colonel Aiken knows how well they can hew logs, many of them. They can shape the timber very readily by their own labor, and with the assistance of the whites they could put up comfortable houses by their own labor with little contributions from the whites.

Representative WILLIS. Is it not true that Georgia is in a better financial condition than any other of the late slave-holding States?

Mr. ORR. I think she is. The taxable property in Georgia to-day, that returned on the digest, is $268,000,000. We have besides $60,000,000 of railroad property in the State, $40,000,000 of which is non-taxable according to the charter, with the right of freedom from taxation.

Senator CALL. Perpetual?

Mr. ORR. I have forgotten about that. I think it is limited. They are free from taxation at present. I know that to be so.

Representative WILLIS. It is limited.

Mr. ORR. Only about $20,000,000 of that property pays taxes. Consequently we are paying taxes in our State on about $288,000,000 worth of property. As you have asked me that, I should like to give my opinion, because it differs very widely from that of some distinguished men whose opinions have gone abroad on this subject. I believe the State of Georgia is improving and improving rapidly. I see hundreds of evidences of that fact around me as I travel over the State. The people are building better houses and better out-houses, and they are farming with better agricultural implements. They have been raising in many places a bale of cotton to the acre where in my boyhood they raised only enough for domestic purposes. The production of the State has been vastly increased. Manufactures are springing up at various points through the State. There are large interests of that sort in Augusta, Columbus, and other towns, and I see evidences all around me of improvement. I think in the course of a few years, if we could be tided over these difficulties, we will be one of the wealthiest States of the Union. I see all the elements of wealth around us. Our mineral wealth is inexhaustible, we are manufacturing everything and we have almost illimitable water power, and our water power is never obstructed by a lack of flowing, or by the freezing up of streams in winter. Our streams generally run all the time and freely.

Representative TAYLOR. You say you would begin with a large sum. Perhaps the share of your State would be about $650,000 according to some of the proposed appropriations; your State would have no difficulty in furnishing an equal amount at once?

Mr. ORR. I do not think we could furnish an equal amount.

Representative TAYLOR. What amount do you furnish now?

Mr. BICKNELL. The total is $650,000 now.

Mr. ORR. Several of the bills propose to appropriate $10,000,000 the first year. The part of Georgia in that would be $800,000 and a little over. One of the bills proposes to appropriate $15,000,000. Georgia's part in that would be about $1,200,000. We are raising over $600,000 now; our school fund amounts to a little over $600,000.

Representative WILLIS. It was $642,000 in 1880; have you increased or decreased since then?

Mr. ORR. I think we have increased.

Representative WILLIS. Does that include the State tax or does it include both local and State?

Mr. ORR. It includes local and State.

Representative TAYLOR. If the Government appropriation would diminish each year according to your plan, as I understand it, would you

require the State to increase its money so that the schools should not go down?

Mr. ORR. I would, if I were framing the act. I should frame it so as to require the State to increase the amount probably in the second year, but I should divide it into periods along, say, for three years.

Representative TAYLOR. Did not your national association, by a committee, prepare a bill which is printed?

Mr. ORR. No, sir; it was the interstate commission that met at Louisville, not our national educational association, which prepared a bill.

Representative TAYLOR. I knew that a bill had been prepared.

Mr. ORR. We are not committed to any bill as an association.

Representative TAYLOR. I simply wanted to know whether that bill expressed your views.

Mr. ORR. If you will ask me my views I will say that I indorse Senator Blair's bill from one end to the other. I have read it and I have studied it, and it is an admirably drawn bill, in my judgment.

When I speak here about conditions I do not mean to have that language apply to any conditions requiring the faithful application of this fund. I want you to look after it. I think Senator Blair makes wise provision for that in his bill. Congress itself is a good body to look after it, and the ultimate appeal is to Congress under his bill, as I read it. If we do not do as the act requires us, if we do not carry out the spirit and intention of it, I want Congress to come in and take away the money from us, and I will testify against my State, because if she does not apply it as she ought to apply it she ought to be testified against even by her own son.

Representative TAYLOR. The bill to which I referred, I believe, provided for a national board of some kind, as I remember it, consisting of seven members perhaps.

Mr. ORR. You are referring to the interstate commission's bill?

Representative TAYLOR. Yes, sir.

Representative WILLIS. It is a preliminary draft of a bill by a commission that was constituted at the Louisville convention last fall.

Mr. ORR. I have read that. I prefer Senator Blair's bill to anything I have read, as you have asked me to express my opinion. I have read all of these proposed measures. I do not mean to attack any bill, you will understand; I want the money in the best way we can get it, but I want it put in the least objectionable shape, and I know Mr. Willis, who has his bill, has said to me that he is open to suggestion from any quarter that was friendly, and that was seeking to benefit him; and I know he is. I know he is a true friend to this movement.

I want to explain to you about one provision in some of these bills. Mr. Rickoff was superintendent of schools for a number of years at Cleveland. If you were to ask me about how the schools of Cleveland ought to be managed, or how the funds ought to be applied, and how their schools ought to be conducted, I would tell you to go to Mr. Rickoff. I would tell you that I was not competent to answer that question because I do not know the surroundings; but if you come to me and want to know of me how the fund ought to be applied down in Georgia, I can answer you about that; at least I can give you my opinion about it, and I believe our people would answer fairly and honestly and faithfully, and would seek to apply it for the benefit of all classes, and I think they are more competent to do it. That is what I state. I made these remarks as introductory to the discussion of one feature in several of the bills. It is provided in some of them that in States that have two systems, one for the whites and one for the col-

ored children, the money, after it reaches the State, shall be divided between the races in proportion to the illiteracy of the two races and applied for the benefit of those races. Let me show you how that would act in Georgia. Under one of the bills it would give us $800,000. I did not make an accurate calculation, but I ran through it rapidly, and I can give you just about the result—$600,000 of that money would be applied to the colored schools and $200,000 of it to the whites. I think it was the chairman awhile ago who said that he was concerned about common white people. I have a great deal of concern about them myself. That kind of distribution is unnecessary, and I am glad you have asked me these questions for I want to talk very frankly all that is in me. If I know my own heart, I desire the uplifting of all peoples in this country, and if ever I as an officer, do anything to impair the the rights of any class of citizens, the humblest, I would pray that my right hand might forget its cunning. That is the way I feel in reference to it; but I wanted to explain to you that under such a measure you would be giving one race a great deal more than was necessary in order to promote the educational interests of that race, and you would be giving the other race a great deal less. We encourage attendance upon our schools for the colored people as well as for the white schools. We have 261,000 white children of school age in Georgia and we have 235,000 colored. We had the year before last—I have not footed up last year's work yet—95,000 colored children in our schools. We had in attendance in all 261,000. You see the whites attended much more largely in proportion to numbers than the colored. The colored had the very same privileges the whites had, precisely.

Let me go further. In Massachusetts a board of education employs a teacher, how? Of course you try to get the very best talent you can get, but do you not let the principle which regulates the wages of the laborer come in and control you to some extent? Does not the ratio of the supply to the demand of a particular kind of labor control in what you pay? I will illustrate. Suppose I am on a committee for building bridges in my county. Educating the children is public work like building bridges. I do not form an abstract idea in my mind as to what is just to give to this sort of a man, that sort of a man, and the other sort of a man. I hire the very best man I can get to do the work on the best terms I can get him. That is the way I do. In hiring teachers I suppose you apply the same principle. Do you not pay women differently from men?

Mr. BICKNELL. In some of the towns we do, and in some we do not.

Mr. ORR. Is there any distinction between the wages of men and women where they do precisely the same work?

The CHAIRMAN. That is generally so, I think; there is no dispute in regard to that, is there, Dr. Bicknell?

Mr. BICKNELL. In the Western States I think, in Chicago, for instance, the principals are paid the same salaries, men and women alike. In Boston there is a variation somewhat, but it is gradually coming to the same standard.

Mr. ORR. Here is the principle of political economy that controls that: The openings for employment for women are not at all equal to those of men. There is one field where they can labor, consequently the educated women of the country rush into that field, and there is a larger number seeking employment than you find of the opposite sex, and you can employ their services for less. The principle of political economy comes in there and you act on it. That is simply what is

true. I do not think you ought to legislate to require a school board to pay a man more than you can get his work for.

Senator CALL. Suppose you could get him for just what would keep him from starving?

Mr. ORR. I am glad to have you ask me questions. I am here for only one purpose, and that is to give information. I will illustrate by the city of Atlanta. I am going to take a case now to illustrate by.

The city of Atlanta has a local system of schools. We have a high school for girls and a high school for boys. We have five grammar schools. We have a capital system, as Mr. Bicknell knows.

Mr. BICKNELL. First rate; the best schools in the country.

Mr. ORR. We have five schools for the white; we have four, I think, for the colored people. What does the board of education of that city do? They hire the teachers on the best terms they can get them. They get the best talent they can command.

Senator CALL. For the lowest price?

Mr. ORR. No; they do not beat them down at all. The principal of the boys' white grammar school gets $1,500 or very near it.

Senator CALL. That is a good salary.

Mr. ORR. The principal of the colored school gets $500. You will say that is not a good salary.

Mr. BICKNELL. Rendering the same service?

Senator CALL. It depends on the amount of capacity somewhat.

Mr. ORR. He is a pretty well qualified man.

Representative TAYLOR. Those schools do not need help, do they?

Mr. ORR. In the city of Atlanta?

Representative TAYLOR. Yes, sir.

Mr. ORR. Oh, yes, sir; Atlanta pays one eleventh part of the education of the State of Georgia. She is stronger, much abler to keep up schools. It is a rich city comparatively.

Representative TAYLOR. What is the aggregate taxation there?

Mr. ORR. The State taxation is 3 mills. I cannot give the aggregate amount of taxes levied for all purposes exactly.

Representative TAYLOR. I mean the aggregate of all taxes. How much is the tax there? What is a man's tax when he pays it; the aggregate of everything? I want to see how heavily they are burdened at that place.

Mr. ORR. I cannot give it exactly. It is 3 mills on $268,000,000 worth of property, three-tenths of 1 per cent. You can count it very quickly I cannot give the figures exactly.

Representative TAYLOR. We have towns in the North that pay 4 per cent. on the aggregate.

Mr. ORR. The charter of the city of Atlanta limits what she can tax to 1½.

Mr. RICKOFF. The city of Cleveland has exceeded 2½ for two years.

Mr. ORR. The charter limitation is 1½ with us. We cannot go beyond.

Now I want to go on and explain that other matter to you a little. I think our friends have made mistakes with the colored people down there in one particular. The great want of the colored people of the State of Georgia to-day (I speak of that State; the South is all alike) is a sufficient number of thoroughly qualified people to teach them spelling, reading, writing, grammar, arithmetic, and geography. That is all they want; that is what they need. Too much money has been expended in seeking to give them a higher education. You ask me why. I can answer you that very readily. It is preparing a class of men for a greater work largely beyond the demands of their people. There ought

to be some men of that sort among them. I am not speaking from prejudice. There is not a negro in the State of Georgia who is not my friend to-day.

Mr. BICKNELL. Is that action by the State raising up a class of too highly educated people?

Mr. ORR. No, sir. Denominational schools have been established down there. I make no attack upon them at all, because they are devoted, conscientious, honest, earnest laborers, but the best men in the world sometimes make mistakes. I have been satisfied all along that the great need with us is what I tell you; it is to give the people of that race a competent supply of good teachers, and I say to-day that, as far as I am concerned, I shall stand up for their rights to the last. If you increase the qualifications I should go for increasing the wages.

Mr. BICKNELL. Have not the large body of colored teachers that you use come out of these schools?

Mr. ORR. Yes, sir; they come out of the denominational schools, and the city schools there. Atlanta has sent out from her city system a considerable number of colored teachers, and Savannah the same. There is a colored man down in Liberty County who is teaching a school, and has furnished that section all around with pretty well qualified teachers for the common schools.

Representative AIKEN. If a colored man with a salary of $500 can teach a common school, why cannot a white man on the same salary do the same thing?

Mr. ORR. I am glad you have put that question to me. I think I can answer that very satisfactorily. The stage of progress in the two races is very different. The colored man can take my cast-off coat, and put it on, and go out into society, and look like he is well dressed. It does not take as much for them to live as it does for a white man. They live a great deal more cheaply; it costs a great deal less for them to live. They get their boarding, as Colonel Aiken knows, for much less. While white people charge white teachers $12 and $15 a month for board, a colored man will go out among his colored friends and get board for a dollar and a half a week; he will get it at from $8 to $10 a month while the white teachers are paying $15. I had that illustrated at several of my institutes. All of you know that as civilization advances, as people become more educated the wants multiply, and a better style of living is demanded.

The CHAIRMAN. I presume members of Congress know how that is.

Mr. ORR. There is another reason that comes in there that I want to mention. The colored people throughout our State, those of them who are well educated, cannot practice physic when they study medicine. Why? Because the white people will not send for them, and the colored people have got nothing to pay them with when they do send for them; although the truth is a colored man would send for a white physician as quickly as a white man; he would voluntarily pass by the black man and go to the white man. He would say, "I am not going to have a nigger doctor here."

Mr. BICKNELL. What is the reason of that?

Mr. ORR. The reason of it is the low condition of the race, and I am trying to lift them up. What I am pressing upon the committees is that in our legislation we must have regard to all these things. Let the people of the Southern States manage the matter in their own way; do not be dictating how they shall apply the fund, but make them come here and give a rigid account. Then you can look into it if it is not done.

Senator CALL. You mean to say that you want the money applied to the elementary education of the child as far the colored race is concerned?

Mr. ORR. I would far rather have it applied to that purpose for all races. The last legislature sent a committee from my State to the North to look after technological schools there. They went to the institution near Boston, and to Hoboken, N. J., and were going around looking at institutions where $750,000 had been expended; and when they came back they asked me my opinion about it. I told them that when I go to supply the wants of my family I give them first the bacon and beans and bread, and if I am able afterwards I buy the syllabub and the knickknacks; and if I am not able to do that I do without them. The present want for our people, white and black, is common-school education. That is what we want; we are all needing it; and all of the rest will come afterwards; it belongs to a higher stage of educational training. I should delight to see such a school as that near Boston. If we had money no man in the State of Georgia would take greater delight in seeing such a school established; but I want the poor children all around through that State to be taught how to spell and read and write first. Multitudes of them cannot do it.

Senator CALL. Do you think they will be able to make a living by learning how to spell and read and write; will they not require some handicraft and pursuit in life in addition to that?

Mr. ORR. Yes, and let them get all of that they can; but get the other first; they can do better without the last you have mentioned than they can without the first; that is, they are less able to do without spelling, reading, and writing.

Senator CALL. Would it not be a good thing for them to get both?

Mr. ORR. Oh, yes; and I am thoroughly in favor of what is put in this bill. Let us give every way we can. Mr. Rickoff, and the other gentlemen from the North, know more about these matters than I do; they have made this a study much longer than I; they know better what can be introduced in the way of university education into the common schools. I never could see a great deal that could be done in that way. I was very much struck with the labors of some Northern ladies in my town, they came down there representing the Baptist Board of Education, and they have got a building in the barracks, and they are doing a most admirable work. They talk to their girl pupils about common morals; they try to impress religious lessons upon them. It is one of the most important works that can be done for them. They then connect that with teaching them how to cut out and fit and make dresses; they connect with that teaching them how to cook, and the common arts of domestic life in regard to managing household affairs, and they mix up with all of it grammar, arithmetic, geography, and so on, but they do not get up in the classics, or the higher mathematics, or the sciences. They do not begin to talk to them about Huxley and Darwin, and such men. They give those gentlemen a wide berth. They teach the elements of an English education. They are laboring at it earnestly. I have visited them and commended them in their work. It is a good work that they are doing.

Mr. BICKNELL. Do you think it hurts a man to know that Darwin lives?

Mr. ORR. Oh, no; do not understand me as putting myself in that position. "This ought ye to have done," our Saviour said to certain men on one occasion, "and not to have left the other undone." When

we are able to do it let us do it; but let us do the most necessitous thing first and then move on.

Representative WILLIS. You would like them to know that such a man as George Washington lived before they found that Huxley was alive?

Mr. ORR. I would—George Washington and Abraham Lincoln.

Representative AIKIN. All of them know that without teaching.

The CHAIRMAN. You think it is better that they should be taught they are men rather than that they are monkeys.

Mr. ORR. Yes, sir. I used to hear the boys speak Webster's big speech, in which he said patriotism could not be hemmed in by State lines. My admiration for greatness is not bounded by State lines. I think Abraham Lincoln was one of the greatest men this country ever produced, if you will let me say so.

The CHAIRMAN. Our Northern people will have to enlarge their views of things a little. There is as much sectionalism among us, I think, as there is among our Southern friends. I think it is pretty well nigh time that Northern people should learn that there is as broad a patriotism in the South as there is anywhere in this country.

Mr. ORR. Over eighteen years have passed since the last gun was fired. I thank God that the time has passed over, and pray to Him that no such time may ever return. I say that it is time for us all to forget the past and not to go back to it. There is a future ahead of us, and all of us ought to learn that lesson—politicians, preachers (for preachers are not free from guilt in that respect), church-members, and those that are not in the church. All of us ought to learn that big lesson.

Mr. BICKNELL. And schoolmasters.

Mr. ORR. Yes, schoolmasters; and I want this Congress to signalize itself by bridging the chasm, by showing that you have just wiped the whole of it out. I have learned by coming North and mingling with these men (I had learned it long ago) that there are just as good men all over this country as ever I found in the South. There are as good friends as ever I had among them.

Mr. BICKNELL. We can say the same of you.

Mr. ORR. I think this Congress can signalize herself. She can go down in all history by adopting a grand act of this sort that shall wipe out the past and make us forget that we were ever divided.

Before I sit down I want to thank from the bottom of my heart these committees for sitting here and hearing us so patiently and attentively.

REMARKS BY PROFESSOR PAINTER.

Mr. PAINTER. As the chairman and members of the committees know, I have been here three years trying to inculcate the doctrine of national aid to the States, and the basis has been strictly that of illiteracy, because it is illiteracy that constitutes the danger, and it is that which we should go for wherever it is located. Our friend, Dr. Orr, would carry the aid to the States on the basis of illiteracy, but it seemed to me that he was bringing in the idea of the races when he got there, which I think is in violation of the principle on which he asks for the money at all. I should certainly deprecate any departure from the principle. When I have been asked to express a preference for one of the bills, I have almost always declined doing so, simply advocating that it should be help given; it should be a stimulus, and not money in the bulk, for that would destroy the local effort in the States or in the towns or counties, and it should be help for common schools, leaving the higher edu-

cation, which I think is equally important for the blacks as well as the whites.

I have been connected with several of the institutes for giving our colored people higher education, and I justify national aid on the principle of manhood. If you say that the negro shall not be educated above his position, then you are necessitated to define his position, and we are driven back again to the old idea that his position was in the corn-field, whereas I think we stand on the principle to give every man a chance and let him find what his position is. I think that idea should control all the way through.

I should deprecate too large an amount of money. I was struck with what was said yesterday in private conversation by a superintendent in one of the Southern States to the effect that he would not know what to do if as large an amount as $15,000,000 was distributed to the States on the basis of illiteracy; that if a large amount of money should be dumped into his State at once, with the ignorance of the people in regard to the practical working of a school system, he would hardly know what to do with it. With the feature, which I think is a wise one, incorporated in Mr. Willis's bill, that it should be proportioned to the amount raised by the State, it would cut off from some of the States a very large share of the appropriation, because they could not do that.

I think there is ignorance in some of the States as to the best methods, not on the part of the superintendents, but through the States, as to practically using a large amount of money to the best purpose. I have thought that with a doubly graduated scale, beginning down somewhat with what the State could do, the State giving an equal amount, and rising up to a certain point, and then in the development of the State, I think it would be able to meet at that point, and as the national aid should decline they would be able to increase it; they would have acquired the wisdom practically to administer larger amounts by this experience. That strikes me as being the best plan.

Mr. SCARBOROUGH. When you speak of distributing to the counties on the basis of illiteracy, do you mean the basis of illiteracy of the population ten years of age and over?

Mr. PAINTER. Whatever plan may be adopted. I believe most of the bills go on the basis of the number of illiterates over ten years of age.

Representative WILLIS. All, I think, are based on that of the twenty or thirty measures that have been presented.

Mr. PAINTER. It would go to the State on that basis.

Mr. SCARBOROUGH. Would you have it distributed over the State to the counties on that basis alone, or would you have it distributed to the counties on the basis of school population?

Representative WILLIS. It is distributed to the counties by nearly all the bills, I think, on the basis of school population.

The CHAIRMAN. There is no bill in Congress that makes any provision in regard to the distribution within the State. The bill which I introduced in the last Congress, and which was objected to on account of an alleged Federal supervision, which did not exist, however, but the misunderstanding arose in regard to the force of the bill, had a provision that in the State it should be so distributed as to equalize educational conditions and facilities to all the children within the State; the State fund and the Federal fund would be combined, and then it became the duty of the educators of the State, those administering the educational funds, at least, to so distribute the money that all the children throughout the State should have an equal chance irrespective of color. The bill has been modified in such a way as to reach the objections of *Northern educators and* Southern educators, and now the bill

which has been referred to as my bill is not my bill in those features which were considered objectionable. It is such a bill as the Senate committee united upon unanimously, and contains the views of Mr. Bicknell and all the superintendents as they were developed in the last Congress, and in what has been said here to-day.

Representative WILLIS. In that connection, I might say that the subcommittee of the House committee has had printed and recommitted this clause of a bill which is the one, I suppose, Professor Painter refers to:

> That in such States as shall maintain separate schools for white and colored children, the money so apportioned shall be divided according to the respective number therein of such white and colored children of the same school age.

Representative TAYLOR. Is there not another provision in that bill which requires the money to go pro rata throughout the State?

Representative WILLIS. The number of their respective population of ten years old and upwards, as shown by the last preceding published United States census, who cannot read and write is the basis of the apportionment.

Representative TAYLOR. But is there not a section which reaches the distribution by the State?

Representative WILLIS. No, sir; I have read all that applies to the subject.

Mr. PAINTER. In conclusion I should like to call the attention of the committees—probably the committee of the Senate do not need to be reminded of it, but the committee of the House is very largely a new committee—to the fact that either resolutions passed by the States, or petitions from the legislative bodies of the States—in the case of Massachusetts it did not come up as a resolution passed, but it came up as a petition signed by almost every member and the governor and his executive associates—resolutions and memorials of that kind from eight of the different States, and in the case of Georgia repeated several times, several of the Northern States, as Rhode Island, Massachusetts, and Ohio, have asked for this aid, and petitions came here until they lumbered the drawers of the committees last year, I think, amounting to about fifty thousand petitioners, scattered over twenty-four different States and a number of the Territories. The demand has become very loud, and the necessity very urgent. We certainly hope that this Congress will not delay. If danger at all proportioned to this assailed us in any other way, I think it would be met. In my estimation, if 300,000 men with arms in their hands were marching on Washington it would be nothing at all compared in its proportions to the fact that 2,000,000 of the voters of this country cannot read the ballot that is in their hands. You may call out 300,000 men to meet the 300,000, but how are you going to meet the illiterate voter in harmony with our ideas of republican institutions and prevent the damage that he does?

As a matter of fact, the illiterate voter has increased very largely during the last ten years, and the school systems in the States are utterly unable to deal with this question. There is no use denying it. By national legislation you dumped into the Southern States a very large mass of people with the ballot in their hands, not allowing those States to say on what conditions they should become citizens. By national legislation you put that burden upon those States, and it is a matter of national concern. It is not a matter for those States alone, but it concerns the Northwest and the East in many respects as much as it does the Southern States. I think I voice the sentiment of a very large body of our citizens when I say here to-day that they expect this *of you, and they* demand it of you as their representative.

ADDITIONAL REMARKS BY DR. BICKNELL.

Mr. BICKNELL. I wish to lay before the committee resolutions adopted by the interstate convention, which was convened at Louisville September 19, 20, 21, 1883. At that, the largest and most important educational meeting ever held in this country, representing so many States, in which our friend Mr. Willis made a very eloquent plea in favor of Government aid, resolutions were adopted, one of which I have read, but I will read them now so as to present them to the committees in this connection:

Resolved, That this convention cordially approves the principle of giving Federal aid to be distributed among the several States and Territories on the basis of illiteracy: *Provided*, That such aid shall be distributed to them with proper guarantees for its faithful application.

Resolved, That a committee be appointed, whose duty it shall be to memorialize Congress on this subject, and to assist in any manner which their judgment may approve in securing the legislation necessary.

The members of the commission were Judge Beckner, who was the presiding officer of the convention; Dr. Curry, the eminent educator of the South, and the agent of the Peabody fund; Hon. Mr. Fitzgerald, the former superintendent of education of Tennessee; Dr. Gregory, one of the Civil Service Commission of the United States; Rev. Dr. Haygood, of Georgia, the agent of the Slater fund; Milton S. Lytle, of Pennsylvania; Dr. Newell, State superintendent of Maryland for so many years, and the secretary of the board of education of that State; Dr. Northrop, of Connecticut, who has been so many years before the United States and before his own State as a leading educator of the North; Mr. Payne, State superintendent of Tennessee; Governor Thompson, of South Carolina; Dr. Waite, of New York, and myself. We have endeavored to be faithful to our trust, and have held several meetings, at which a large portion of these gentlemen have been present at one or the other, and we have taken the liberty to outline a few points, not in any authorized bill perhaps, but something that would be suggestive to the committees of Congress with reference to the points that seemed to us important. If you will allow me I will call to mind a few of those provisions, and I should like to have some of them incorporated in the report, if it is proper to do so. I can state the substance of the measure very briefly.

The title of the bill is, "To establish an educational fund to aid in the support of public schools in the several States and Territories." It provides for the distribution of $67,000,000 over a period of twelve years on the basis of school illiteracy between the ages of ten and twenty inclusive, in the several States of the United States as shown by the last census, and to each person in the several Territories between and including the ages of six and twenty, on the basis of illiteracy in the States, and on the basis of school population between six and twenty in the Territories. It proposes a division on the following basis: The division shall be $4 per person for the first, second, and third years.

The CHAIRMAN. Per what person?

Mr. BICKNELL. Scholar, pupil; per illiterate.

The CHAIRMAN. Illiterate scholars?

Mr. BICKNELL. Yes, sir; per illiterate of school age.

The CHAIRMAN. That is, the illiterate of ten years of age and over?

Mr. BICKNELL. Between ten and twenty, inclusive. That gives, for instance, to the State of Louisiana, for three years, $500,000 for each year. It gives about the same to the State of South Carolina.

Representative WILLIS. How would you ascertain the school age? That is a practical question.

Mr. BICKNELL. By multiplying the number.

Representative WILLIS. It differs in every State, and you propose to select an arbitrary school age and apply that to every State. There is no census report showing it.

Mr. BICKNELL. We ascertain from the census how many are between ten and twenty.

Representative WILLIS. Is there such a census?

Mr. BICKNELL. Yes, sir; we have that. That makes it uniform for all the States. We have a table prepared which shows exactly the amount each State would receive at $4 for the first three years; for the next three years, $3; for the next three years, $2; and for the last three years, $1.

The bill provides that for the supervision and carrying into effect of the provisions of this act the formation of a board of trustees composed of seven members. The Secretary of the Interior *ex officio;* two members of the United States Senate, and two members of the House of Representatives, not belonging to the same political party, to be appointed by the President of the Senate and the Speaker of the House, respectively; *ex officio* the Commissioner of Education; and the Fourth Auditor of the Treasury form a board of trustees, with headquarters at Washington, to supervise the matter of seeing that this money is properly provided and sent to the States. It requires that if the bill passes at the present session of Congress the apportionment shall be made this year according to the basis already stated, but that no State or Territory after the second appropriation under this act shall receive under its provisions a greater sum than such State or Territory shall have expended during the previous year for the purpose of public instruction by money raised in such year by State, Territorial, or local taxation.

Section 4 is the leading one, and I think I will read that. It is very important and covers the great question at issue:

> That the funds paid to the several States shall be apportioned and expended by their duly authorized officers in counties or corresponding divisions of such States in proportion to the number of illiterate persons in the same between the ages of ten and twenty-one, as shown by the United States Census last preceding, and shall be applied within the same to the free public school education of children without distinction of color or sex between and including the ages of six and twenty.

The bill further provides that one-third of this sum may be appropriated for the erection of school buildings and the instruction of teachers in training for common-school work by normal schools or by institutes. It allows the States a permissive privilege of using it if they consider it wise to do so. It also provides that the sums apportioned shall be likewise applied to the free and impartial education of children between and including the ages above named; and in States and Territories, or portions of the same, where separate schools for white and colored children are maintained, the money received under this act shall be divided and expended among said schools in proportion to the respective number of white and colored illiterates enumerated therein at the United States Census last preceding.

It is understood that under the term free common school education may be included such rudimentary instruction in arts and industries as the several State authorities may consider fit to provide.

There are only two conditions relating to the bill. The first requires that the several States shall designate the officers to whom shall be paid and by whom will be disbursed the sums annually apportioned. This

observes the perfect autonomy of the States, as has been so eloquently and properly urged should be done by all the gentlemen who have spoken this morning, and urged by none more earnestly and sincerely than by all our educational people of the Northern States. The second condition secures a just measure of uniformity in the application of this aid. It requires that suitable schools shall be maintained for four months in the year. We felt that this was the lowest minimum of school that we ought to establish, and that this fund with the State appropriations already raised would in all cases reach that length of time. We felt that they might begin with this minimum and proceed as rapidly as possible toward a higher maximum.

State and Territorial superintendents are required to carry out these instructions and to transmit to the Commissioner of Education each year reports concerning the condition of the schools and the proper and wise application of the fund.

There is one provision in regard to default to which I will simply refer, and that is that in case any State or Territory shall neglect or refuse to comply with the foregoing provisions in the application of the fund the money shall be covered into the State treasury and may be expended for the maintenance of schools for the instruction of teachers. It provides that a report of such intended action and such use of the funds shall immediately be made to and receive the approval of the trustees of the fund. They are the final arbiters concerning it, and if any State or Territory fails to comply with the terms of this act the money is then converted into the United States Treasury.

Section 8 refers to the reports which may be required by the board of trustees, which shall be made to the Commissioner of Education and transmitted to Congress for the two bodies to discuss each year, and, as has been stated here, to decide whether the national aid is properly and wisely appropriated and applied.

These are the significant portions of the bill which we simply present as a suggestive measure in some of its features for the consideration of the honorable committees of the two Houses. I would say that this bill receives the hearty approval of the members I have named, and we have ascertained the views of prominent men throughout the country. We mailed a copy of the bill to each of the executive officers of the several States, and to prominent educators, and have received a mass of correspondence which is very valuable and interesting indeed. I wish it could be printed, but there is no means, I presume, for doing it. It would show the intense interest and the very great intelligence which prevails on this subject, and the intelligent discussion of the bill, for instance, by governors and State superintendents throughout the country, which is of great interest to me personally, and has been to the committee which I represent here.

Representative WILLIS. Have you noticed the criticism of the State superintendent of California upon that bill?

Mr. BICKNELL. No, sir, I have not seen it.

The CHAIRMAN. What is the substance of the criticism?

Representative WILLIS. The first objection is to the creation of a Board of National Trustees to exercise control; the second is the subordination of State officers to the Board of Trustees; the third is the interference with the local and domestic control of education by the Board of Trustees in four or five different particulars; the fourth is the possible expense which may result from the last clause of the bill, which was not referred to by Dr. Bicknell, providing for the enforcement of the law.

Mr. BICKNELL. Since attention has been called to it I will state the substance of it. Section 10 provides that the contingent expenses of the Board of Trustees, including traveling expenses, shall not exceed blank dollars. It has reference only to such traveling expenses as might be required to make such inquiries as might be necessary to see that the money was wisely appropriated. Of course somebody must attend to this, and it seemed wise to the committee I represent to suggest that there should be some competent and well authorized body to do so.

There are two points which Dr. Orr has referred to that I should like to say a word upon. While I agree with him almost always in regard to the positions he takes, I think I must differ from him here, and I should like to state my views as a representative of those who have expressed to me some difference of opinion with him on this subject.

The first is as to the division of the fund on the basis of illiteracy. We feel that this is the true basis of division for the General Government and should be in the several States. The second point is that we should not make a distinction with reference to the payment for the same service performed by the several school officers or teachers in the various communities. I think that is unfortunate, and it will prove more so if any discrimination is made on account of color, north, south, east, or west, in regard to this matter. If the same service is performed equally well by a white person and a colored person, we see no reason why both should not receive the same reward and the same encouragement, so as to elevate the one and qualify him for that position. While the law of supply and demand is a proper one in many instances, we feel that it should not be too strictly applied in such a case.

Mr. ORR. I beg to ask Dr. Bicknell to allow me to explain.

Mr. BICKNELL. Certainly.

Mr. ORR. I am not an advocate of discrimination on the ground of color at all.

Mr. BICKNELL. The doctor will pardon me, then, because I understood him to say that he paid $1,500 to the principal of a white district school in Atlanta, and $500 for a colored teacher in the same grade.

Mr. ORR. That was not because of color.

Mr. BICKNELL. Then I misunderstood you entirely.

Mr. ORR. Do you in Massachusetts give a woman less than a man because she is a woman?

Mr. BICKNELL. Partly so, and partly because her services are less.

Mr. ORR. Where they perform the same service precisely, as they often do, you give the woman less than the man. Is it because she is a woman?

Mr. BICKNELL. It does not follow that it is right because we do it. I am simply urging the question on the matter of universal right and justice.

Mr. ORR. I plant it simply on the principle of political economy, the law that prevails everywhere.

Mr. BICKNELL. The rule in the Western States, especially in California, is that men and women performing the same service for the State shall receive the same reward, and I think it should be established in this matter thoroughly. I think we should heartily stand together on that platform if we can get on it together.

Mr. SCARBOROUGH. Does the State of California undertake to regulate the difference in the cost of living in different localities?

Mr. BICKNELL. Not at all.

Mr. SCARBOROUGH. Then they cannot equalize the reward.

Mr. BICKNELL. As a matter of course that is a matter for private adjustment; it must always be under all circumstances.

Mr. SCARBOROUGH. Then the other is equally a matter of private adjustment.

Mr. BICKNELL. Where a public service is demanded it seems to me that similar public service should receive the same reward.

Mr. RICKOFF. Is there anything in the bill drafted by the commission representing the Louisville convention which would interfere with the local administration of the schools?

Mr. BICKNELL. Not the least.

Mr. ORR. Yes; if one feature of the bill is adopted it would make us distribute the fund in a way that we are not distributing school funds. I do not know what that is, if it is not interfering.

Mr. BICKNELL. I am discussing matters now outside of the bill. The matter we have been talking about for the last five minutes has nothing whatever to do with the bill.

Mr. RICKOFF. Is there anything in the bill which would affect the payment of teachers in the several localities?

Mr. BICKNELL. Not in the least.

Mr. RICKOFF. That is the point of my inquiry.

Mr. ORR. If I read the bill aright it requires in counties where there are separate schools for the two races that the money shall be applied for the benefit of the races in proportion to illiteracy in either race.

Mr. BICKNELL. Precisely; that is it exactly.

Mr. ORR. That affects the mode of distribution. We say nothing in the world in our proposed bill about race.

Mr. RICKOFF. I can see how that might affect the rate of compensation, but would it really affect the rate?

Mr. ORR. Yes, sir; it would give to colored teachers in my State $600,000 of the money and to the white people $200,000. That is what it would do.

Mr. BICKNELL. Is not that the relative proportion of illiteracy?

Mr. ORR. Yes, sir.

Mr. BICKNELL. Are we not to apply this fund on the basis of illiteracy to remove illiteracy?

Mr. ORR. That provision would interfere with the mode of distribution in the States.

Representative WILLIS. I think it about amounts to this: With $600,000, with the less price you pay for colored teachers you might employ fifteen hundred colored teachers, whereas you could not with the same amount employ more than one thousand white teachers. But that advantage will come to those who ought to receive it. That is the way I look at it.

Mr. RICKOFF. But it will not affect the rate of payment.

Representative TAYLOR. As I understand it, it will not affect the rate of payment at all; but they will have more schools during the year.

Representative WILLIS. More schools and more teachers, which they ought to have.

Mr. BICKNELL. Precisely so. Our theory is that there is a great evil. The evil exists in the school population of this country. The money is to be directed to that evil, and wherever the evil exists, whether in the white or colored populations, to that end and to that object shall the money be appropriated, and to no other. I do not believe that any bill can pass this Congress unless it is placed on that basis.

Mr. ORR. I want it understood that I am in favor of paying the mar-

ket prices for teachers, whether they are white, red, blue, or any other color, but I want no discrimination.

Mr. BICKNELL. No discrimination as to payment for the service on any color lines or any other line, except such as the laws of political economy suggest.

Representative WILLIS. If you can take a thousand dollars and employ three colored teachers you will do it?

Mr. BICKNELL. Certainly; and that would give them the opportunity of having more schools.

Mr. ORR. What would become of the surplus money?

Mr. BICKNELL. I do not think that would give you more than ten months' school for the colored people, and they really need it the most.

Mr. ORR. But out of $800,000 you would give only $200,000 to white schools?

Mr. BICKNELL. Is not the great source of evil among the colored people?

Mr. ORR. Yes; and we are meeting that, but it is not necessary that we should pile up money to meet it. We propose to do like wise men.

Mr. BICKNELL. Would it not be right to allow the colored people a larger amount of money for school purposes? The superintendent of New Orleans said to me day before yesterday that if $500,000 was brought to his State this year to be appropriated for public education he should not know what to do with it; it would be either stolen or wasted. Those are the words he gave to me.

Representative TAYLOR. Who was that?

Mr. BICKNELL. Mr. Rogers, the superintendent of schools of New Orleans, who, before the war, was the superintendent of schools of that city, and who has been ever since, a man who occupies a prominent position there. He said that they could not apply it; that in two or three years they could get where they could apply it, but in that State the machinery is not in operation and they must get the appliances ready before they could make proper use of even $500,000.

Mr. SCARBOROUGH. We can apply $1,200,000,000 to educational purposes in North Carolina right now, if we could get it.

Mr. BICKNELL. I only give the opinion of the school superintendent of New Orleans.

Mr. ORR. My subordinates have given bond for $4,000,000, and have disbursed it in my State, and out of that $4,000,000 there has not been a loss exceeding $5,000. That is the record.

Mr. BICKNELL. So far as I understand the public sentiment, I think the people of this country are ready to give the money for education wherever it will be needed, and they only demand that it shall be fairly and impartially applied to the place where that need actually exists, under such impartial laws as may be adopted by the States, but if not adopted by the States that that money shall be withheld.

Representative WILLIS. That it shall go back into the Treasury.

Mr. BICKNELL. Certainly; that it shall be converted into the Treasury; that is the principle. This nation is waiting to-day for statesmanship to settle that, and when that is settled you will have no trouble with this Congress or any other as to passing a bill for Federal aid.

Representative AIKEN. You would not want to postpone the time when the money is to be appropriated simply because one State would not know what to do with what we give them.

Mr. BICKNELL. No, sir.

Representative AIKEN. You would not postpone it twelve months on Louisiana's account?

Mr. BICKNELL. No, sir; not at all.

Representative WILLIS There is a clause in the bill which guards that, and says that only so much shall be appropriated to the State itself in such a case.

Mr. BICKNELL. Precisely. I think it should be done immediately. The exigency is pressing, and we must work at once to the result. The only question that arose in my mind was whether there should not be a little delay possibly, if the bill should pass before the adjournment of Congress, so as not to provide that the money should be distributed on the 1st day of July, 1884; for instance, instead of going immediately into effect, it might be well to provide that the distribution should not be made before the 1st of October. It might be well to delay the distribution at least six, or eight, or ten months, in order that the States might prepare themselves, in this great emergency, to receive this aid, and to utilize it to the best possible use. A great deal of work must be done, perhaps by these very State superintendents, to prepare a way and get the right sort of teachers, and a few months of institute work, or normal training, might be allowed in the *interim*. Perhaps it would not be wise to wait at all, but I only suggest that as a matter possibly of necessity.

Representative WILLIS. Does the bill you present suggest a delay in the distribution of the fund.

Mr. BICKNELL. No, sir; it does not.

Representative WILLIS. It suggests an immediate appropriation?

Mr. BICKNELL. Yes, sir.

Mr. COWARD. I should like to say that the proposed mode of distribution would simply necessitate that the colored schools should be continued from two to four months every year longer than the white schools.

The CHAIRMAN. I understood you to say, in substance, that it costs more to remove white illiteracy in proportion to the number of illiterates than colored illiteracy.

Mr. COWARD. It does. If you have a school of forty white pupils, in the same neighborhood you will have a school of eighty or ninety colored pupils, over twice, or nearly twice as many. If a first-class teacher is given to each of those schools and you pay the teachers by the month, it will enable the colored school teacher to run his school much longer than the white school. If you limit the benefit to white schools according to the proportion of illiteracy among the whites, you would give them the ability to run only one month longer than our State resources now enable us to run, that is, four months, whereas the colored schools would run from eight to nine months during the year, according to the liberality of your gift.

Mr. BICKNELL. We propose to provide that one-third of this money shall be appropriated at option for the erection of school houses and the training of teachers, so that you have an outlet there.

Mr. COWARD. I am speaking now of the actual school work itself amongst the children. While the bill may provide that a portion of the fund shall be used in building school-houses and training teachers, I am talking about the training of children. I say the operation of that section of the bill would be to run the colored schools of the State of South Carolina at least two months longer than we can run the white schools.

Mr. BICKNELL. If you appropriate all for that purpose.

Mr. COWARD. That is making a distinction on account of race.

Mr. BICKNELL. No; it is making a distinction on the basis of illiteracy.

Mr. ORR. It is not the greater illiteracy of the colored race that would

make the money go further; it is on account of the cost of their living being less. The superintendent of South Carolina is right.

Mr. BICKNELL. Is it not true in the rural districts of South Carolina that the school-houses for colored people are poorer than those for whites?

Mr. COWARD. I suppose, taken on the whole, they are somewhat inferior, and for the reason that the white people go together. In so far as the State is concerned, although the appropriation is used without any reference to race, the people of a neighborhood will voluntarily unite in building a school-house. The colored people are not disposed to unite to build good school-houses. The fact is, whenever an attempt is made in that direction it is done by the assistance of the white people.

ADDITIONAL REMARKS BY MR. SCARBOROUGH.

Mr. SCARBOROUGH. I wish to state the proposition as I view it, not on the ground on which Mr. Orr has stated it, or Mr. Coward, or Mr. Bicknell. What I want to guard against in North Carolina is a tendency for the races to divide in their taxation for school purposes, devoting the taxes paid by the whites to the education of the whites, and the taxes paid by the colored to the education of the colored. That is the tendency in North Carolina, and I have looked at it as a mighty nightmare hanging before me in my school work. The proposed distribution on the basis proposed in this bill will have the effect to make the white people do that thing, and to say "If the National Government will take care of the negro we will take care of ourselves." I want our people, in the matter of education, to take care of themselves and the colored people, and the colored people to learn to take care of themselves and at the same time to help to take care of the whites. In other words, I do not want our school system to be supported by a plan of taxation which takes the property of the white man and taxes it for the white schools and the property of the negro, if he has any, and taxes it for the negro schools. That provision in the bill, it occurs to me, has a direct effect to cultivate such a tendency instead of wiping it out. That is the dread I have of it, and it is the honest desire to serve the interests of the colored people and the white people and to stop all that which makes me object to such a provision.

Representative TAYLOR. How would you propose to have the State distribute it?

Mr. SCARBOROUGH. I would distribute it in the State on the basis that our constitution expressly declares that our school fund shall be distributed, and that all funds arising from any gift or donation from the National Government or private individuals shall be distributed. Our constitution defines how it shall be done. It provides that it shall be distributed to the several counties of the State on the basis of school population without discrimination in reference to race, color, or previous condition of servitude; that each child who is of school age shall receive so many dollars. After all, that is the class of people we have got to reach, the children who are attending school. Those who have grown up and passed beyond the school age we have got to get along with as best we can; but we can give those now growing up an opportunity of education.

I simply wanted to show the tendency which I dread in that feature of the bill, and I ask pardon of the committee for occupying so much time.

The CHAIRMAN. You would suggest a provision, then, that the funds

going to the State should be divided according to the school population?

Mr. SCARBOROUGH. I would. Under our constitution there could not one cent of that money distributed, according to the number of colored children of school age, go to the white children. Not one cent of the money would go to the white children, but every cent of the white children's money would be taken away and go to the colored children.

The CHAIRMAN. You make the point that as this is to be temporary aid, if while it is given the races have been instructed to depend upon themselves as races, it would leave the colored children, who have very little property, when the national aid disappears, comparatively unprovided for?

Mr. SCARBOROUGH. Exactly so. At the same time our white people would have been educated to keep on and take care of themselves and let the negro go. That is the condition of affairs I want to keep off. In other words, I want the races to get into such a condition that our people, all of them, will say our school system must and shall be preserved, and must and shall be supported.

The CHAIRMAN. How much cheaper are wages of a colored teacher than those of a white teacher where the quality of the work is relatively the same, in your State?

Mr. SCARBOROUGH. I will take the city of Raleigh as an illustration of the city schools. We get the best lady talent in our white schools for $40 a month. Our very best lady teachers are teaching for $40 a month in the Raleigh City graded schools. In the colored graded school in that same city you get the best talent among the colored women for from $25, and none of them exceeding $30 a month.

The CHAIRMAN. How do the white teacher and the colored teacher compare in capacity for instruction?

Mr. SCARBOROUGH. They would have about the same capacity on the same line.

The CHAIRMAN. You suggest that a distribution on the basis of population would give the colored schools considerable advantage?

Mr. SCARBOROUGH. A considerable advantage. The length of the school term for the colored man in North Carolina is beyond that of the white man. While the white man's school runs but three months the colored schools run much longer, and they get good teachers and they live well. I have colored teachers in North Carolina who are teaching at a salary of a thousand dollars, but it is where the necessities of that man are such and his rising to an appreciation of home comforts and home living is such and his family is such that he demands that and says, "That is what I am worth; that is what I must have for my family to live on;" and the school committee gives it to him. But suppose another man comes up equally as well prepared, equally qualified, and says, "I can take your school, and afford to do it for $500, and I am anxious to do it for $500; it will pay me amply and pay me well." Would you, as a member of the school board, in our poverty, employ the man at $1,000 rather than take the equally well qualified man for $500? We pursue the same principle with our white teachers.

The CHAIRMAN. Is there any practical difficulty in the employment of white teachers in colored schools?

Mr. SCARBOROUGH. There has been; there is now, more or less.

The CHAIRMAN. I mean to inquire whether the colored people and parents have a preference for teachers of their own color?

Mr. SCARBOROUGH. They do, most decidedly.

The CHAIRMAN. Then the fact which was alluded to that colored peo-

ple would employ white doctors in preference to those of their own race does not hold in the matter of teaching?

Mr. SCARBOROUGH. Not when it comes to teaching. I think Major Bingham stated it exactly the other night in his address. He said, "If you will put the money behind the position of teachers and make it to the interest to our white women in consideration of the salary, with the natural interest that they feel in reference to the colored man and the colored man's child as a servant, as being raised up together, you can get the best ladies, I believe, in the Southern States for the purpose of instructing the colored children and raising up colored teachers. If the salary is sufficient, they will walk over prejudice and break down prejudice, and our best white people may be secured to teach in the colored public schools."

Representative WILLIS. I do not see that there is any difference between you and Dr. Orr and Dr. Bicknell on this question. As I understand Dr. Bicknell, according to the last census the amount expended by the whole South for school purposes was $12,000,000, and when that $12,000,000 was expended only half of the school population went to school, and those who did go to school in nine of those States only went from nine to sixteen weeks. If you were to give that same length of school, from nine to sixteen weeks, to all the children of those States it would take $24,000,000. There is no bill which has been introduced that goes more than $2,000,000 or $3,000,000 further than that, and possibly none that will ever pass would go that far. So that it seems to me the present condition of illiteracy in the South is such that all the money that may come from Federal aid will not be sufficient to give a common-school education to those who are now out of school. His point is, as I understand it, that if you can take a thousand dollars and engage the services of two colored teachers and take those two, it is a just and a proper division because of the greater number of colored children in the South.

Mr. SCARBOROUGH. Let me say a word in explanation of that. I think I can throw some light on it. The seeming discrepancy between the number of children enrolled in the public schools and the number of school age does not count at all. That does not mean that half of our school children never go to any school by any means. Our constitution provides that the school age shall include all between six and twenty-one. That is on paper. The practical working of that is that the school age in North Carolina includes those between eight and sixteen years who actually go to school. It is true that in many of the country schools the children go below eight, but in many of the country schools also, on account of the distance, the small children stay at home instead of going to school and learning their A, B, Cs, or, as the change now is, learning the words. Then when they get to be sixteen or seventeen years old, our people being a farming people, the boys go to work and the girls sometimes go into the field too, and if they do not they go to helping their mothers about the house; so that practically the school age is between eight and sixteen, and so you get a much larger per cent. of practical school population in the State than is shown by the figures. I do not mean that half of our people never attend public schools at all.

Then another point: If you fix any system of schools by which there is enough money to run the schools for the colored race ten months in the year you have got the teacher sitting down teaching all the farming time when it is possible for the negro boys to make money for them-

selves, and you have got the teacher teaching to empty benches and a few little fellows.

The CHAIRMAN. Then the statistics mean not that one-half never go to school at all, but that the entire number never get more than one-half of a common-school education. In contemplation of law they ought to receive it; that is to say, the law contemplates that the child shall receive education during that period of life, between six and twenty-one, in your State, and one-half the children between those ages do not attend.

Mr. SCARBOROUGH. The practical fact is that most of those who have passed sixteen do not attend the public schools.

The CHAIRMAN. Your law provides that they shall attend between six and twenty-one, because it is supposed that they should be attending school and getting an education between those periods?

Mr. SCARBOROUGH. Yes, sir; but after they pass sixteen not many of them go to the public schools.

The CHAIRMAN. I think those statistics have created some confusion of thought in the minds of many. I know they did in my own mind. The practical fact is that instead of half of them not going to school at all and getting no education, the whole, on an average, get only one-half what they should.

Mr. SCARBOROUGH. That is the case.

The CHAIRMAN. Some get half enough, others a quarter enough, and others none at all, practically. I think the test of being able to read and write is an exceedingly absurd one, for the point is to be able to read and write well enough to get and communicate ideas in that way, and many people can nominally read and write who never get a thought out of a newspaper or out of a book, because they cannot read and write well enough to do it.

Mr. SCARBOROUGH. I will illustrate the truth of that statement. The United States census does not begin to state the practical illiteracy in North Carolina, and I presume it is so in a great many other States. We have, for instance, in North Carolina a denomination, the Baptist Church, the largest denomination in the State. There are 116,000 *bona fide* members of the Baptist Church, or, in the Baptist Church language, those who are old enough "to make a credible profession of faith" before they become members of the church. That is our membership. We have one organ of our denomination in North Carolina, and it does not reach 5,000 subscribers out of 116,000 members. My knowledge of the denomination proves to me that it is because so many of them cannot read at all, and there are very many others who cannot read well enough to make it a pleasure or a profit or to get any idea from the reading, and yet they are put down in the census as not being illiterates but literates.

Mr. ORR. Let me say one word by way of explanation. In our State the boards employ the teachers. What the teacher receives is a matter of contract between him and the county board. Between the white and colored teachers in many of the counties there is not a bit of difference made. They pay them precisely the same wages. In some other places they go on the plan I stated awhile ago—they hire the teachers as they can get them. The man in Atlanta I spoke of could not make that much money at anything he could turn his hand to; he jumped at the chance of getting it. The board do not want to be throwing away money where they can get the work they wish done by those qualified to do it for less money; they do not want on sentiment to be paying him more money, and they hire him in that way. The business principle

[illegible] In some cases. It is simply a matter with the boards. They employ the teachers. They do not discriminate because a man is a black man. They do not give a man less wages because he is a black man. They employ simply because they are able to get the services for that and no other reason is that man he can do anything else in the world.

Mr. Bicknell. Let me add also that New Orleans pays the same salary to both white and colored teachers. Mr. Eaton said he thinks they have made any discrimination.

OFFICE OF STATE SCHOOL COMMISSIONER.
G. J. ORR, COMMISSIONER.
Atlanta, Ga., February 21, 1884.

DEAR SIR: In thinking over what passed in committee when we were in Washington I have feared that some may have misunderstood the true position of the Southern States. We all tried to be very explicit. In replying, on the spur of the moment, to questions suddenly put, a man can not be as clear as when he sits down with pen in hand to indite coolly.

The main point on which I feared we were misunderstood was our treatment of the colored race. In Georgia, as I stated, our boards employ the teachers. The law, very properly, puts no requirements on the board as to the terms of employment. In some counties they pay all teachers, white and colored, superior and inferior, so much per capita on average attendance making no discriminations. In other counties they discriminate on the ground of qualifications. In others still, the boards employ the best teachers they can secure, and upon the best terms they can make, thus making application of strictly business principles. The general result in the State is that the average compensation of colored teachers is less than that of white, and as colored teachers are almost universally employed to teach colored children the per capita paid for teaching colored children is less than that paid for teaching white. This does not result, as Dr. Bicknell seemed to think, from a purpose to discriminate against the colored race. It is no part of our plan to discriminate against them. Our school law expressly provides that our boards "shall, as far as practicable, provide the same facilities for both races in respect to attainments and abilities of teachers and length of term time," and this we are endeavoring to execute faithfully.

As a rule, colored teachers are not as well qualified to teach as the white, and can be employed for less and the result as to the cost per capita of teaching the colored children is as above stated. Dr. B.'s plan of making two funds for a county, a white man's fund and a colored man's fund, by providing for a distribution of the fund after it reaches the counties on the basis of the illiteracy of the respective races, would be a discrimination against the white man and in favor of the colored man. As colored teachers can be employed for less money it would necessarily result in giving them much greater length of term time.

After going out of the meeting of the committee, in a long conference with the superintendents of North Carolina, South Carolina, Georgia, and Alabama, Doctor Bicknell declared himself as fully convinced that he was wrong in this part of his scheme, and affirmed it as

his purpose to abandon it altogether. The only policy that can be sustained here, the only one in fact that can be made to do justice to both races is to leave the whole matter to local control. I feel sure that in my State better teachers could be secured for the colored people by a liberal appropriation. Many of our own white people could be thus induced, as I believe, to teach them. I have openly urged this as our true policy in many places.

I have thought it best to make this fuller, more explicit statement. Large numbers of the men of property, influence, intelligence, and standing—a vast majority, in my opinion, of such—agree with me in the desire to do the best that can be done for our children, irrespective of race. Should the Government give us the money necessary, Georgia, I am sure, would prove to the whole world by her acts the sincerity of this declaration; and, I believe, the same may be said for the other States of the South.

I did not hesitate to declare my preference for your bill above all others. I am for it because it is liberal in the amount appropriated; because it proposes to furnish aid only for a time, leaving the States in the end, to carry forward their own educational work; because it provides for the application of the money to the support of common schools and to the better training of the teachers of those schools; because it provides the least objectionable mode of governmental supervision looking to the securing of the proper and legal application of the funds; and, more than all, and above all, because it leaves the application of the fund provided to be made under State laws and by the regularly constituted State authorities.

The most of what is said above, perhaps all of it, was stated before the committees. I have thought it best to repeat and to put in writing that we may make assurance doubly sure as to the matter of being understood.

You may make any use of this communication which you may see fit to make. I may further state that I hope you will not hesitate to call on me for any information or facts which further progress with this great measure of national relief may make necessary.

With great admiration of the patriotic efforts you are making in behalf of the whole country in this matter, and appreciative remembrance of personal courtesies,

I am sincerely and most respectfully yours,

GUSTAVUS J. ORR.

Hon. W. H. BLAIR,
United States Senate, Washington, D. C.

[Senate Mis. Doc. No. 72, Forty-seventh Congress, first session.]

Notes of the hearing before the Committee on Education and Labor of the two Houses of Congress, given to a Committee of the National Educational Association, appointed to urge national aid to public school education, Friday, March 24, 1882.

MARCH 27, 1882.—Ordered to be printed for the use of the Senate.

The Committees on Education and Labor of the Senate and House of Representatives met at 10 o'clock a. m., Friday, March 24, 1882, to receive and hear the Committee of the National Educational Association, holding its session in Washington. The committee of the association, consisting of G. J. Orr, of Georgia, M. A. Newell, of Maryland, J. H. Smart, of Indiana, Hugh Thompson, of South Carolina, were present, accompanied by Dr. J. W. Dickinson, of Massachusetts, B. G. Northrop, of Connecticut, and other members of the association.

Senator Blair occupied the chair.

The committee of the association presented the following memorial to Congress:

A MEMORIAL TO CONGRESS.

The undersigned earnestly call the attention of Senators and Representatives to the following facts and suggestions with reference to governmental aid to common schools, on the basis of illiteracy.

The following table is based upon the estimates of the Bureau of Education. In the sums raised by the States interest on the invested funds is not included, except in a few States. The table is not exhaustive, but only illustrative.

State.	Total population, 1880.	Total illiterates 10 years and over who cannot write, 1879.	Colored illiterates 10 years and over who cannot write, 1879.	Total of State and local taxes for common schools, 1879.	What this gives for an average school of 30 pupils per annum.	Total sum that a fund of $3 per capita for illiterates would give the State.	How much this because of colored illiteracy.	How much of it to white illiteracy.
Alabama	1,262,505	433,447	321,680	$250,000	$17 00	$1,300,341	$965,040	$335,301
Iowa	1,621,615	46,609	.....	4,227,300	.....	139,827	.....	132,827
North Carolina	1,399,750	463,975	271,943	314,719	20 00	1,391,925	815,829	576,096
Wisconsin	1,315,097	55,558	.....	2,223,581	.....	166,674	.....	166,674
Kentucky	1,648,090	348,392	133,895	947,392	76 00	1,045,176	401,685	643,491
Michigan	1,636,937	63,723	.....	2,453,831	.....	191,169	.....	191,169
Arkansas	802,525	202,015	103,473	189,080	28 00	606,045	310,419	295,626
Connecticut	622,700	28,424	.....	1,276,667	.....	85,272	.....	85,272
Louisiana	919,946	318,380	259,429	450,000	42 00	955,140	778,287	176,853
Kansas	966,096	39,476	.....	1,276,786	.....	118,428	.....	118,428
Georgia	1,542,180	520,416	391,482	471,089	27 00	1,561,248	1,174,446	381,802
Massachusetts	1,788,085	92,980	.....	4,372,286	.....	278,940	.....	278,940
South Carolina	995,577	369,848	300,071	440,110	36 00	1,109,544	930,213	179,331
Minnesota	780,773	34,546	.....	1,361,526	.....	103,638	.....	103,638
Maryland	934,943	134,488	90,172	1,210,977	275 00	403,464	270,519	132,948
Maine	648,906	22,170	.....	820,860	.....	66,510	.....	66,510
West Virginia	618,457	85,373	10,139	703,185	247 00	256,128	30,417	225,711
Nebraska	452,402	11,528	.....	786,963	.....	34,584	.....	34,584
Tennessee	1,742,359	410,722	194,495	698,776	51 00	1,032,166	583,435	648,731
New York	5,082,871	219,600	.....	9,675,992	.....	658,800	.....	658,800
Virginia	1,512,565	430,452	315,660	1,261,975	87 00	1,291,056	941,980	344,076
Ohio	3,198,062	131,847	.....	6,714,086	.....	395,541	.....	395,541
Mississippi	1,131,597	373,201	319,573	334,769	26 00	1,119,603	959,529	160,344
New Jersey	1,131,116	53,249	.....	1,742,198	.....	159,747	.....	159,747
Florida	269,493	80,183	60,420	104,530	39 00	240,549	181,260	59,289
New Hampshire	346,991	14,302	.....	544,716	.....	42,906	.....	42,906
Missouri	2,168,380	208,754	56,244	2,163,330	310 00	626,262	168,732	457,530
Illinois	3,077,871	145,397	.....	6,735,478	.....	436,191	.....	436,191

We respectfully suggest: 1. The help should be so given that it will stimulate rather than supersede the necessity of State effort.

2. It should be help for the common schools; temporary aid in the training of teachers perhaps, but chiefly in giving them opportunity to teach.

"The safety of the republic is the supreme law of the land." This is the maxim which not only justifies but demands action on the part of the General Government; and it should also suggest the limitations under which the action should be taken.

3. The help should be immediate and not remote. The fortunes of war, and the necessities of legislative action, have made citizens of a large mass of ignorant men, whose votes are to shape, for weal or woe, the character of our laws. Education alone can convert this mass of ignorance and element of danger into one of enlightened strength and safety.

Largely more than one-half of a fund for the education of the illiterate would go to the South for negro illiteracy; less than one-fourth because of white illiteracy. If Congress should create a fund which would give $3 per annum per capita for the education of this class alone, it will require an aggregate annual sum of $18,719.958. Of this, Mississippi, *e. g.*, would receive $1,119,603, but of this $959,529 would be for colored illiterates, and $160,344 for white illiterates.

Representing an educational work in the South chiefly for the negro race, in which have been expended about $10,000,000, and speaking with a wide knowledge of facts, we emphatically assert the impossibility of accomplishing this great work unless the General Government shall come to the assistance of those States in which this illiteracy is chiefly found.

Every dollar we have expended expresses the conscientious and earnest desire of the

donor that this work shall be done, and is an emphatic vote for the action for which we ask.

In the name of the millions of Christian citizens whom we represent, we earnestly urge Congress to help qualify the ignorant voters who are intrusted largely by Congressional action with the ballot for the duties with which they are charged, believing the power to do this is co-ordinate with the power that enfranchised them.

REV. M. E. STRIEBY, D. D.,
American Missionary Association; Congregational.
REV. J. C. HARTZEL, D. D.,
Secretary Freedmen's Aid Society; Methodist.
REV. H. L. MOREHOUSE, D. D.,
Home Missionary Society; Baptist.
REV. SHELDON JACKSON, D. D.,
Home Missionary Society; Presbyterian.
REV. J. L. M. CURRY, D. D.,
Agent of the Peabody Fund.
PROF. C. C. PAINTER,
Fisk University, Nashville, Tenn.
S. C. ARMSTRONG,
Hampton Institute, Virginia.

WASHINGTON, D. C., *March*, 1882.

ADDRESS OF DR. DICKINSON.

The CHAIRMAN. I understand the gentlemen of the convention have arranged that Dr. J. W. Dickinson, secretary of the Board of Education of Massachusetts, shall address us first. The Joint Committee will be very glad to hear the gentlemen who have appeared to address us upon the subject under consideration.

Dr. DICKINSON. Mr. Chairman and members of the Committee on Education and Labor: We appear before your honorable body at this time as a committee chosen by the National Association of Superintendents of Public Instruction in the several States of the country, to urge upon the National Government the necessity and the duty of passing a bill to aid in the establishment and support of our common public schools.

Believing, as we do, that States should maintain their existence as States simply for the accomplishment of two ends, the protection of the people in the full and free enjoyment of the objects of their natural rights and for their more perfect development, that the protection a free State can afford its citizens is in exact proportion to their right development, and that their development depends on the character and extent of their public educational institutions, we claim that it is the right and the duty of a democratic State first of all to make as ample provisions as its resources will allow for the establishment and support of these institutions. It would seem to be in accordance with a sound philosophy for the National Government to do anything and everything, as far as its ability extends, which is necessary to be done, and which the States or the people cannot do as individuals acting alone. Ignorance is a dangerous element in any community. It always has proved, and it always will prove, fatal to republics. For this reason, and for the sake of the citizens, considered each as an end unto himself, our Republic should make all possible haste to render universal those institutions which have for their objects intelligence and virtue.

The last census has just brought to us the alarming information that over six million, or 12¼ per cent., of our people are ignorant of the very elements of knowledge. We also know that a very large proportion of these illiterate ones is to be found in that portion of our country made desolate by the ravages of a destructive war. This knowledge has assembled for the past two days, in this capital city of the nation, the leading educators and friends of popular education from every section of our country. These men, who are devoting their strength to the great work of organizing and directing the educational institutions of the States, have come together to consult with one another for a solution of the terrible problems created, on the one hand, by the vast number of illiterate persons in our free communities made to be citizens by the laws, and, on the other, by the utter inability of many of these communities to provide themselves with those institutions which alone are adapted to train the ignorant into the possession of a virtuous intelligence. The consultation has been earnest and thoughtful, and has resulted in a complete unity of sentiment and resolution that the General Government ought to and must grant temporary aid to the people of the country in establishing and supporting common public schools, so that all the children of the people may have the opportunities of obtaining a sound education.

Mr. Chairman and gentlemen, it has been agreed by this committee of the National Association of Superintendents of Public Instruction in the States, and representing all sections of the country, to represent to you the educational wants of these sections; then to urge upon you the imperative necessity of meeting these wants by the passage of a bill in aid of establishing and supporting those schools, at least, which furnish

the means of elementary instruction. That these schools may be supplied with competent teachers, we also ask for the means of establishing and supporting teachers' institutes, training schools, and normal schools. We recommend that the basis on which the funds provided shall be distributed shall be that of illiteracy, for in this way the people who most need the aid will receive it; that the mode of distribution be through State agencies, made responsible to the Secretary of the Interior through the Bureau of Education. This will render unnecessary the creation of new officers and prevent the clashing of conflicting authorities. That no State shall receive its share of the fund unless it raises for its own schools an amount of money equal at least to one-third of what it would receive from the appropriation. This would require the States to use their powers in helping themselves in proportion as they are helped. That the aid shall be furnished at once, for when nations or individuals are in peril there is no time to be lost.

Finally, it is recommended that the power of administering the law granting the aid shall be vested in the Secretary of the Interior, for then the same power that made the law can compel its faithful execution.

For the political and moral support of such a law I am sure I have the right to pledge Massachusetts and New England, for the old Commonwealth, through all the years of her history, has been thoroughly and intelligently interested in popular education. John Adams expressed the universal sentiment of his State when he said that the instruction of the people in every kind of knowledge that can be of use to them in the discharge of their moral duties as men, citizens, and Christians, or of their civil duties as members of society and freemen, ought to be the care of the public and of all those who have anything to do with public affairs. Massachusetts owes her prosperity and her civilization to the practical application of such sentiments as that to her free public schools.

And now, gentlemen, without detaining you longer with any remarks of my own, allow me to present to you one who has given the strength of a noble life to the cause of popular education, and in that portion of the country now suffering from the appalling dangers to which ignorance always exposes a free people. I have, Mr. Chairman, the pleasure of introducing to you Mr. G. J. Orr, of Georgia, who will now speak of the needs of his State and the aid her people must receive that they may help themselves.

ADDRESS OF G. J. ORR.

Mr. ORR. Mr. Chairman and gentlemen of the committee, the duty assigned me on this occasion is a very simple one. I have been laboring in this work in my State for the last ten years. I have been the representative of the Department of Education since 1872. I do not propose to detain the committee by any lengthened remarks. I propose to give you, gentlemen, some plain facts showing our condition, showing our necessities, showing the temper and spirit of our people, and I feel that when I do this, when I put before you the condition of the State of Georgia, I shall have given you a type of what prevails throughout the entire South.

In the year 1860, when one of the honored Senators from my State now present, was our chief executive, the tax returns, according to the documents in the office of the comptroller general, summed up $672,000,000. After I entered the office which I now have the honor of filling I went to the files of that office for the purpose of trying to ascertain the aggregate value of property at the first return made after the war. I found it to be $170,000,000. The property of the State was thus reduced $500,000,000 in value. This made a great change in the condition of the State, as you may well know; but this does not represent fully the change. It lacks a great deal of it. I will put before you, gentlemen, a few other considerations which will show more fully the great change which was wrought. Everything that we had accumulated during the four years of the unhappy struggle in which we engaged was invested in Confederate securities, and was held in the shape either of bonds or of Confederate currency. Thus what remained of the labor of four years, after the devastation of your army and the support rendered ours, was blotted out in one hour. Hundreds, thousands, and tens of thousands of the best men in the State of Georgia were thus left in a condition in which, under the old postal laws of the United States, when postage was paid at the place of delivery, they could not have taken a letter from the post-office. You will very readily understand, then, how we were situated as to our capacity to commence life again.

Not only this, but the whole labor system of the country was thrown into disorganization. The agriculturists had no means of going to work again, and we are an agricultural people, as you well know. They had no capital to begin with. They had to borrow. They had to give a lien upon the products of the soil in order to enable them to pay the debts, and those who held the capital exacted exorbitant interest. Our farmers and agriculturists have been paying from 50 to 100 per cent. for advances. Having their noses thus put to the grindstone, they have been kept there up to the present time, for every intelligent man knows very well that farming cannot be con-

ducted successfully when the capital used in it costs such a per cent. The lack of resources and the utterly disorganized condition of the labor of the country put us in a very helpless condition.

Let me glance for a few moments at certain other facts. We had in the State of Georgia two kinds of citizens—those who had always been citizens, and a number of persons, very nearly equal, who had been made citizens as a result of the war. The last school enumeration, which was taken four years ago, showed that we had 198,000 colored school children in the State. The entire school population is 433,444. The difference will show you how many are colored; nearly half, you will see.

Let me say a few words about the colored people. They were made free without resources. They had no capital; they had no habits that would lead men when thrown upon their own resources to accumulate capital. They have been gathering capital gradually until I am very glad to report that the last return of the property of the State showed that there were in the hands of the colored people of that State some $6,000,000 worth of property. I think the colored people of my State have done nobly; I say it here to their credit. But the point I am now making is the immense burden which was put upon us. I do not give you an idea of that burden by telling you the number of persons who were suddenly made free without resources. That does not give you an idea at all.

There is no means of getting at the number exactly, but I think at least one-half of the white population was in the same condition, utterly wrecked, ruined financially by the results of the unfortunate struggle in which we had engaged. For one, I want to see the last remains of that struggle buried forever so deep that the hand of resurrection will never bring them up again. I think it becomes us of this generation to begin to think about living for the future, to forget the past. We have a great country, and here we must dwell; our people want to dwell with you in unity and harmony. I know what I say; I have visited in the course of the administration of my office almost every county in the State of Georgia. I have made two hundred addresses to the people. I have stated to you the difficulties now. I know the condition; I know the spirit of the people, their present sentiment. I know it from mingling with them in their cottages and in their cabins, for I have visited the colored man as well as the white man. I have mingled with all; I know their feelings.

I want to say to you, gentlemen, that in the State of Georgia, under my administration of ten years, the entire loss of school fund will not foot up more than about $6,000. In an administration covering ten years there has not been a single dollar misapplied with that exception that I know of. We try to make it do the greatest possible amount of good. We try to manage it with the greatest economy. We admit to our schools all who want to enter them. We commenced in 1871 with a school attendance of 48,000. We have gone gradually upward. My brethern here will excuse me for using the same illustration which I did before the association when in session. One of the fathers, a man contributed to us by New England, one of our most honored men in the early history of that State—I allude to Abraham Baldwin—in speaking once of central power, illustrated it by that wonderful power known as the screw. He stated that at every revolution it gained a little, and it held all it gained. I quote his illustration, not making the same application of it; I make a very different one. We have gained at every revolution a little in Georgia, and we retain all that we gain. We are moving steadily forward. We commenced with an attendance of 48,000 the first year. The second year we had 83,000, the next year 136,000, the next 156,000. I shall not follow the statistics along. Year before last (my year's work has not been footed up, as the returns are not all in,) we went up to a school attendance of 236,000. We have never failed to gain as much 9,000 in any year. We have gone over that in attendance every year, and the colored people have proceeded *pari passu* with the whites in their attendance. They commenced with 6,000 and went up, according to the last return, to 86,000 colored children in our schools. There is no discrimination made; no man can afford to do it in an office in my State. So strong is the school sentiment in favor of the administration of exact and equal justice that no man can afford to do it. We are struggling to do the very best we can with our limited means.

I have read a good deal on the subject of the school history of this country, and of the different States. In addition to that, I have been giving my attention to this great subject of the education of the races, for eleven or twelve years. I have been reading whatever fell into my hands, and you will excuse me when I say that considering the circumstances in which we were placed, the great disadvantages under which we labored, the immense difficulties which we had to contend with—considering all these things and considering the work achieved, I do not believe the equal of it has been done in any State of this Union, in any time during the past. If it has, it is not within my knowledge. We have wrought a marvelous work, but we are unable to do what ought to be done. We come to you and ask the interposition of the strong arm of the Government, the Government of your fathers and of out fathers, for we are one of the Old Thirteen. We stood shoulder to shoulder with you in that

contest, and I want to say here to-day, that if another contest shall arise our people will stand by the people of New England and the people of the Middle States in supporting the power and the authority of the Government of the United States.

Gentlemen, I do not know that I could state anything further that would be of service to you. I wish to add that I was greatly gratified when my brethren here from New England, and from the great Northwest, and from the Middle States, and from the Southern States, met in council, and when we sat down as brethren, and when we agreed almost unanimously upon every point to be submitted to this committee for consideration. We are practically a unit, and on all of these recommendations the men from all portions of the country agree.

Now, gentlemen, begging pardon for taking up so much of your valuable time, and thinking that it is proper for me to yield to others who may have something to say on this occasion, I shall conclude by asking, as I know as I shall have, the candid consideration of this great questioon f the education of the masses, greater than questions of commerce, than questions of currency, than questions of tariff, than questions of constitutional law—greater than any questions that statesmanship will have to contend with and settle, because we make the people and without the people we can have nothing else. We make the men and women of the country. I shall say nothing further.

Representative UPDEGRAFF. I should like to ask the honorable gentleman whether the average time of continuance at school has increased.

Mr. ORR. Our last legislature succeeded in adding about $100,000 to the fund. We shall have this year very nearly $600,000 to operate with. We shall be able to run our schools in many of the counties absolutely free for four months of the present year—that is my estimate—and in all of them paying the entire expense for three months. We are adding just as rapidly as we can.

Dr. DICKINSON. I have now the great pleasure of introducing to you a gentleman representing a State full of that spirit and purpose which, if you furnish the means that are necessary, will express themselves by establishing the highest order of those institutions upon which the safety of the nation rests. I introduce to the committee Mr. Hugh Thompson, of South Carolina.

ADDRESS OF HUGH THOMPSON.

Mr. THOMPSON. Mr. Chairman and gentlemen of the committee: In presenting the view of South Carolina, I shall ask to call the attention of the committee to three points:

First. That the State of South Carolina is now doing all in her power for public education.

Secondly. That it is impossible in her impoverished condition for her to furnish the means of education to the masses of the children; and

Thirdly. That the aid we ask for, if granted at all, should be granted immediately.

I have brought here some figures from the school returns of South Carolina which I wish to read, and as I have no set speech to make to the committee, I shall be glad to answer any question that any member of the committee may wish to ask. An interruption will not interfere at all with the line that I shall take.

I call the attention of the committee, first, to the fact that in 1877, when I took charge of the Department of Education in South Carolina, the first thing I did was to call for a statement from the different counties of the amount of past indebtedness known as the school indebtedness. I was aware that it was large, but I was surprised to find when the returns came in that we had upon us a debt of $210,000 due against the school fund. This debt at that time of $210,000 was supposed to be the full limit, but upon subsequent investigation it turned out to be much larger. During the period from 1877 until the present time, we have been attempting to pay off this debt. In some of the counties the debt has been entirely liquidated, and there are not more than one or two counties now remaining in which there is any considerable debt to be paid. But that debt has hampered us in every move we have made to strengthen and develop our public school system. In addition to that we have a debt of $191,800, known as agricultural land scrip. There was not one cent of that money to be found in the treasury; the last dollar of it had been misappropriated. That fund, too, has been restored.

The committee will observe, therefore, that we have paid a debt of over $400,000, money that ought to have been used for elementary and for higher education, and that we have thus been hampered in our attempts to make the school system as strong as it might otherwise have been.

The assessed value of the property of South Carolina to-day is nearly $138,000,000. We have three sources of revenue from which our school tax is derived. First, it comes from a constitutional tax of two mills on the dollar upon all the taxable property of the State. The amendment to the constitution, making this a part of the organic law of the State, was adopted in January, 1877. Observe, gentlemen, that this

is part of the organic law; it is not subject to changes by different legislatures. We are glad to state that each year the income from this source grows larger and larger as the assessed value of property is raised.

The second source from which we derive an income is from the poll-tax. There are in the State of South Carolina, on the books, 140,000 polls, and the poll-tax there is one dollar a head. We have never succeeded in collecting more than $114,000 from this source, owing to the fact that a large number of the voters of the State are entirely without property, and we cannot enforce the collection of even the one dollar per head.

The third source from which we derive our revenue is local taxation. This mode of raising taxes is becoming more and more in vogue each year. At each session of the legislature we find different towns coming forward and asking permission to levy additional taxation.

The misuse of the public money during the first years of the school system, from 1868 to 1877, and especially the abuse of power under the local tax laws, is one of the great obstacles that the school men of South Carolina have had to contend with, because we are constantly met with the charge that the thousands of dollars that were wrung from the people within the period named were misapplied, were stolen and misappropriated, and that this public school system is only an engine of taxation, the money for which will not be carried into the channels for which it was intended. I believe, though, that this spirit is rapidly passing away. As I said the other night before the association of superintendents, I am convinced that if to-day the question of maintaining the public school system of South Carolina were submitted to a vote of white citizens alone, by a very large majority they would be in favor of maintaining it, and strengthening it, and of developing it so far as may be in their power.

I should like to call the attention of the committee, in order to show what the State is doing in this respect, to a brief comparison of the taxes collected for the different purposes in South Carolina. The whole of the State tax, in round numbers, is $629,000. The proceeds of the county taxes are about $800,000, making a total of nearly $1,500,000. The proceeds of the school and poll taxes, according to the last return of the comptroller-general, were $465,000. In other words, the school tax of South Carolina is about one-third of all the other taxes that are collected in the State. The assessed school tax was $465,000. Of course the actual amount collected was a little less than that, being about $425,000, because there were a good many delinquent taxes.

In addition to this, the State now makes an appropriation of $24,000 for the University of South Carolina. That university has two branches, the old South Carolina College at Columbia, for the whites, and the Claflin College at Orangeburg, for the colored. The Claflin College is partly supported from benefactions by benevolent persons at the North; but these two institutions for the higher education of white and colored are maintained by the State at an annual cost of about $24,000. In both these institutions instruction is free; no charge whatever is made for tuition. In the Claflin school at Orangeburg we have a normal department for teachers, which is each year turning out successive bodies of skilled and trained teachers, who are doing estimable work for the colored. In addition to this, the State has recently made provision for the re-establishment of its military academy, appropriating $15,000 this year for that purpose. In this military academy there will be supported now, as before the war, two cadets from each county, who pay nothing whatever. They are supported in full by the State, and they are required to teach two years in the public schools of the State after their graduation. There will be another class of young men in the institution known as pay cadets, who will pay moderate tuition for themselves, and will not be required to render any service. They will pay their way through the institution. Besides that, we have the Normal Institute, supported by the State, this year an appropriation of $1,500 having been made for that purpose.

You will observe, therefore, gentlemen, that we are appropriating now about $465,000 for elementary education in South Carolina and a little over $40,000 for higher education, making a total of more than half a million dollars which South Carolina is devoting to this purpose, with an assessed valuation of property of but $138,000,000.

I should like to call the attention of the committee to another comparison. The whole expense of the State government of South Carolina for the last year, inclusive of interest on the public debt, was $238,575. The expenses for the maintenance of the charitable institutions, there being but two, an asylum for the insane and one for the deaf and dumb, were $116,164. Therefore the expense of public schools and of charitable institutions was $581,164. For these purposes South Carolina appropriates two and a half times as much as she does for the whole expenses of her State government. For public schools alone she appropriates twice as much as she does for all the expenses of the State government. I mention these facts in support of the position which I take that the State is doing all that she can do for the maintenance of her public schools.

I now desire to call the attention of the committee to the second point I make, which is that the State of South Carolina is unable because of her impoverished con-

dition to give proper instruction to all classes of her people. The scholastic population of the State—children between ten and sixteen years of age—as made by the returns of the county school commissioners in 1875 (I have been unable to get the returns of the census, which are more accurate, and I doubt not will show even larger figures than these), was, whites 85,678, colored 152,293, making a total of 237,971 children. The school attendance in South Carolina for the year 1880–'81 was, whites 61,339, colored 12,119, making a total of 73,458 at the public schools. The expenditure per capita of school population is $1.95, the expenditure per capita of school attendance $3.50. I call the attention of the committee to the fact that while these schools are free and open to all and no distinction is made on account of race or color, according to these returns (which are inaccurate, because I believe they are below the truth), we have 100,000 children in the State of South Carolina whom we are unable to educate for the want of larger means. The number of public schools in the State last year was 3,057, the number of white teachers 2,026, the number of colored teachers 1,223, making the total number of teachers 3,249.

Taking the illiteracy of South Carolina shown by the return of the last census, which I had an opportunity of observing last night, the ratio of white illiterates to the whole population is 7.77 per cent.; the ratio of colored illiteracy to the whole population is 33.09. I maintain that as far as controlling the white illiteracy in the State is concerned, South Carolina is able, ready, and willing to control it; and that she is equally ready and willing to control the colored illiteracy, but that it is beyond her power to do so. It is from this class of our citizens, a class to whom I claim that the State government of South Carolina in all its departments has done full and ample justice, that the trouble comes. I believe I speak the sentiment of the majority of the people of the State when I say that we in South Carolina feel that the safety and prosperity of the State depend upon the education of that class of our citizens. I need not speak to you, gentlemen of the committees, of the limited opportunities that the colored people have had heretofore for education, but you know that the absolute need for it now is such that if the United States Government does not hold out a helping hand to us at this time, we shall continue to send forth each year illiterate voters by thousands.

Bear in mind, gentlemen, that one generation of these people have grown up without the opportunities of education. This generation has got now the fathers and mothers of another generation coming along. It is a well-established fact, a principle recognized by all, that to appreciate education is a consequence of education itself. It is necessary, therefore, for the State and for the General Government to come to the front at this time and to make South Carolina and the other Southern States what I believe the people of those States desire that they shall be, thoroughly educated.

I will call the attention of the committee to the fact that there are now in the Southern States about five million children ready and needing the opportunities of education. The expenditures of the Southern States under this head are about $7,000,000, but little more than a dollar a head. It would take at the lowest calculation $30,000,000 to furnish the opportunities of education to our children in the South. Gentlemen, I say, as one knowing the spirit of the people and knowing their limited resources, that we have not the means to furnish this education.

I do not propose to detain the committee with any argument as to the right of the General Government to furnish the means for which we ask. I desire to say for my State, and I am sure that I speak the sentiment of other States, that we do not come here as mendicants in this matter. We do not come here asking for charity. We have put our own shoulders to the wheel; we are using all the efforts in our power, and we simply ask of this great Government that it will come to our aid now in the time of our great necessity, because if this aid is withheld now, if it is not granted now, as I have shown, there are thousands of children whom we are unable to educate, and who need this assistance at this very moment, who will not be educated.

I was told this morning, since I entered this room, by a gentleman to whom I was introduced, that South Carolina always liked to be in the front. As of old, South Carolina wants to be in the front in the matter of public education. It is for that reason we have come here, because we have not the means, as I have stated, to furnish this education ourselves. I believe it is but a few moments ago when some gentlemen from this side were called before a committee of the House of Representatives of Congress with regard to the deepening of the harbor at Charleston, and the improvement of that harbor. That great work is now going on under the charge of a distinguished engineer, a distinguished soldier, whose duty it was during the war to leave more imperishable marks upon the city of Charleston. He is there now in the quiet pursuits of peace, deepening that harbor, and giving to South Carolina an outlet for her trade and her commerce which she has so long needed; but, gentlemen, there is a need that South Carolina has, not second even to the deepening of the harbor of her great metropolis. Great as are her resources, wonderful as her power is when fully developed, the true source of her strength and of her power is in the brains of her people. It is for that purpose we are here to ask the Government to give her the means of de-

veloping the brains of her people, and we do ask that we may have an opportunity of coming to the front and staying there as one of the States of the Union, contributing our share to the civilization and the progress of this great country, and making South Carolina, as one of the States of the Union, contributing her quota to make the people of this whole country once more free, prosperous, happy, and united.

ADDRESS OF J. H. SMART.

Dr. DICKINSON. I now present a gentleman eminent as an educator, a friend of education, who is here to represent the North. I refer to Hon. J. H. Smart, of Indiana, and I will say before he commences, that Mr. Smart presided two years ago at the meeting of the National Teachers' Association which met at Atlanta, and he knows well the spirit of the people of that country.

Mr. SMART. Mr. Chairman and gentlemen of the committee: I shall detain you just long enough to state a fact and to express an opinion, a fact in reference to the need of the South, and an opinion in reference to their willingness to do what they can.

It has been my fortune to be able to make several visits to a number of the Southern States, and on one of these, taken last summer, I was driven from one of the popular summer resorts in the State of Georgia to the railway station, a distance of about 18 miles—a road frequently traveled, because this summer resort was largely visited by Southern people—by a negro who owned his own team, letting it to the hotel proprietors and his own services during the summer months. He informed me that he owned a little house and a small amount of land; that he rented fifty acres, and I found that he knew a good deal about the condition of things in his locality. I have talked with several hundred negroes in the South as occasion offered, and I want to tell you some of the answers this driver gave to some of my questions on this ride. This man was thirty-two years of age, and he told me that he had tried to learn; that there was a school within a reasonable distance, and that he had attended that school; but he confessed that he had not been able to learn very much. He was a man of more than ordinary intelligence for one in his condition. I asked him if he knew the name of the President of the United States, and he said that he did not. I asked him if he knew the name of the governor of his State; he said that he did not. I asked him if he had voted for the President of the United States at the recent election; he said that he did vote. "Can you tell me for whom you voted?" "No, sir; I cannot; I don't recollect." "Do you know anything about England?" "Yes, sir; I have heard something about England." "Is it in the United States?" "I do not know." "Is France in the United States?" "I can't tell you; I think it is." "Did you ever hear of Governor Colquitt?" "Oh, yes; I think I voted for him. Is he the man you spoke of a moment ago?" "No, he is not the President of the United States." "Did you ever hear of Garfield?" "Oh, yes; he was hurt, wasn't he; he was shot, wasn't he?" "Is not that the man you voted for?" "Yes," he thought it was.

Now, this man, unable to read his ballot, is not a subject whose duty it is to obey, the sum of whose political duties is found in the word obedience, but he is a sovereign, and the ballot is put into his hands. It has been put there by the National Congress. That man makes the law that governs me. Forty per cent., as I am informed by Dr. Orr, of the voting population of this State are illiterates; there being 80,000 of them.

I related this incident to a number of Southern superintendents a while ago, and I was told that it was a typical case, much to my astonishment, and that what I found here with this negro was to be found in thousands of cases in the other States. I believe that the State of Georgia is in danger, and not only the State of Georgia, but the State of Indiana, from this state of affairs—in more danger than if one hundred thousand men were to land on the coast of Georgia to-day fully armed and equipped for war, and that the State of Indiana will suffer from this condition of affairs.

Now, I want to express the opinion that the Southern people are willing to do all they can to cure this great evil and remove this great wrong, and, so far as I have observed, the work that has been done, under existing circumstances, has been a marvelous work. The Southern people have made a heoric effort, certainly in three or four States that I have visited, to do the best that could be done for these colored people. I want to say that throughout the length and breadth of the Southern States, without one exception, the colored people are given the same advantages that the white people are given. No distinction whatever is made; and, so far as I was able to find out, there is an almost unanimous, certainly an overwhelming, sentiment in favor of educating the colored children equally with the white children. And I believe, from what I saw, that we are able to trust the existing State organizations represented by these gentlemen; we are able to trust them with whatever means we can appropriate, and I speak after some investigation and after deliberation.

There is a pressing need, and these gentlemen have told you about it; there is no

[illegible]

ADDRESS OF [illegible]

[illegible]

[illegible] I will not detain the committee longer.

ADDRESS OF D. F. DE WOLF.

Dr. DICKINSON. There is a gentleman present whom I should like to call on to say a few words, the superintendent of the State of Ohio, Col. D. F. De Wolf.

Mr. DE WOLF. Gentlemen: There is one point that I should like to speak of for the State of Ohio, and I think for the Central and Western States. I have mingled with those people for forty years; was with them during the great struggle that resulted in the reconstruction, so called, of the Southern States. Those States were a party to the doctrines that were embodied in that reconstruction when they united in imposing on the Southern States a large body of voters. They took the responsibility of imposing upon that section of the country and upon the United States a large body of voters. I do not know but that they did wisely, and I do not know but that they think they did wisely, but they think they assumed very great responsibilities, and I think they are ready now to consider those responsibilities, and to take what action may be necessary to meet those responsibilities.

The State of Ohio is a wealthy State, but she feels that she has about all that she can do to support her own system of schools, of which she feels proud. She sympathizes with Georgia and South Carolina and the other States of the South in the great labor that has been imposed upon them in this imposition of so many millions of people as

citizens who are not educated. I think that whole section will be hearty in its accord with the notion of doing at once all that the United States Government feels that it can do at once for the assistance of those States in this matter.

That is all that I have to say, and I think it is the important part of the question. I think that all these Northern States are ready to assist in making those men really voters now that they are by law voters, making them intelligent voters.

ADDRESS OF REV. A. D. MAYO, D. D.

Dr. DICKINSON. The gentleman I now present has, under appointment, been traveling in the South the last two years, meeting and addressing the teachers and pupils of the Southern schools. He has become intensely interested in his work, and knows well the condition and wants of the people with whom he has labored. I have great pleasure in introducing the Rev. Dr. Mayo.

Rev. Dr. MAYO. Gentlemen of the Committee: I suppose my brethren have asked me to say a word to you because for the last two years I have spent my whole time during the school year in visiting the schools of twelve of the Southern States, from Virginia to Texas inclusive. During this time I have had the most ample opportunities afforded me by the State authorities, by teachers, by citizens, by pupils, by people of every class, to ascertain the condition of educational affairs in that portion of the country, and I feel that I am in a condition to form intelligent opinions in regard to the several matters that will come before you in this consultation. Of course time will not permit me to give the data or the reasons for conclusions which I may express to you, but ever since I began this work—and I would say that previous to that I had no personal knowledge of affairs in the South, and never went through the South until two years ago—several conclusions have forced themselves constantly upon my attention.

In the first place, I am fully prepared to indorse that emphatic declaration of Dr. Curry, who perhaps better than any Southern man understands the educational condition of the South, when he says that the illiteracy of the Southern States is absolutely appalling. By this I do not wish to say that the leading classes of the Southern States are an ignorant people. I find them there a very cultivated people; I find a people equal to any people in the world; I find as a class the white people of the South are fully up to the people of any State in the Union in natural capacity and force; but the condition of illiteracy which exists seems to me absolutely appalling. And one little point I wish to call your attention to here: Not only is this illiteracy confined to the colored people and to the poor white people, but there is great danger, unless something can be done soon, that great numbers of the children of the better classes of white people in the South will be plunged into illiteracy.

No class in the South suffered so much from the effects of the war as the respectable leading class of white people in the South, and to-day there are hundreds of thousands of boys and girls growing up through all the Southern States, the sons and daughters of the leading people of those States, who, unless something can be done very soon, will be doomed to grow up in ignorance. Perhaps the most pitiful thing that can happen to any State is that it should lose what it has gained. While the blacks and the poorer whites are really better off in educational affairs than ever before, the children of the better classes of people are absolutely worse off than they ever were before.

Now, to meet this condition of illiteracy, it seems to me utterly idle to speak of anything but a system of thorough elementary education afforded by the State. No church system of schools, no private system of schools can meet the exigency. There must be a system of elementary education, which includes the training of teachers, proper school-houses, and everything of this kind, in order to meet this great want.

Another matter has forced itself very constantly on my attention which has been alluded to before, which is this: I am pretty well acquainted with the condition of education in our country and in other countries, and I have no hesitation in announcing to you, gentlemen, my conviction that never within ten years in the history of the world has an effort so great, so persistent, and so absolutely heroic been made by any people for the education of the children as by the leading class of the people in our Southern States. Practically, within ten years every one of these Southern States has put on its statute book a system of public schools; practically, within this time every district of country in the South has received something that can be called a school. This school public, as we may call it, consisting of State officials, of school officers, of superior teachers, of thoughtful people all over the South, is to my mind the most forcible, the most persistent, the most devoted school public now in any part of the world. There is no body of superior teachers doing so much work for so little pay and under such great disadvantages as in the South to-day. There is no minority of people working so hard to overcome this terrible calamity of illiteracy anywhere in the world to-day as in the South. I give this as the deliberate result of two years of observation in twelve States.

Once more, gentlemen, it seems to me that in building up this system of elementary education our Southern people have come almost to a halt. For the last ten years the school public has been working in every conceivable way to bring the attention of the people to this matter, and I believe to-day that the practicable limit of taxation is about reached. We may say ideally and abstractly that the Southern people can give more than they do for education; but practically, looking at them as we look at every people in the world, I believe that the limit is reached. And what is the condition in which we find things there to-day? Perhaps $10,000,000 is expended through these States of the South for elementary education, and there seems to be just about money enough to put on the ground a system of schools which, while it is an improvement to the negro and to the poor white man, is profoundly unsatisfactory and insufficient for the leading class of the white population of the South; in other words, the introduction of the public-school system has broken down the old-fashioned system of education by which the white people obtained their help, and has introduced an inefficient system, so that a multitude of these people really have no good place to educate their children. Let me illustrate the state of things: Here is a town or a district that has a thousand dollars, all told, for school purposes; with that thousand dollars that district can establish an insufficient school for three or four months in the year, with an inexperienced teacher in an insufficient school-house; a school which is not satisfactory to the best people, which cannot do the work that should be done. That is the course of things all over the Southern States, in cities, in country towns, and in the country districts, and the crying want through all that country is that what these people now have shall be supplemented by enough to put a good school system at once on the ground.

We must remember, gentlemen, that nine men out of ten in the South never saw what we call a good public elementary school. The thing that is necessary is to put for one year, for two years, for three years, in every district through that country a school that will be a fair representative of a public school, that the people can see it; and once having seen it and enjoyed its benefits they never will give it up again. Now, it is utterly impossible for the average school authority to get the money to put such a school on the ground. Give to that man another $500, another $1,000, and at once, without wearing himself out with importunity, he can put on the ground the school that the people need; a school that, instead of being a school that satisfies nobody, is a school that satisfies everybody; and once having seen that school for one year, for two years, for five years, for ten years, that people will be stimulated to great exertions and will never give it up.

Let me illustrate this by one spectacle which I saw which will put you in full possession of this point. The little city of Goldsboro', N. C,, has about four thousand people. Up to a year ago that city had no school in it which was satisfactory to any portion of the white inhabitants of the city; it had a poor public colored school under the county authorities. Six months ago a few of the enterprising citizens of that city were able to put into operation a thorough white graded school. By the aid of the Peabody fund they were able to secure an expert for a teacher, so that school took all the children in the town. Four hundred children were put into a good school-house, graded and organized; over them was put an expert teacher, and at once it was shown to everybody in that town what could be done with a good graded school. I visited that town one day, and it was like going to a town that was under the effect of a religious revival; everybody was in a state of delightful excitement; everybody was asking me to see the school; people were coming from all parts of the country to see it, and just because the agent of the Peabody fund could come in with his thousand dollars and give to that school the expert which made it what it was. The battle was won, the thing was done, everybody was satisfied, and the whole region around about was being instructed and brought up to that work.

Such schools in county towns mean good schools in the country districts. What we ask you, gentlemen, is to give to these school authorities everywhere through the South money enough to supplement what they are now doing; so instead of an insufficient school, as they have now, they can put on the ground at once a good school, which will satisfy the people, which will confirm them in their desire to sustain education, and which will give them a fair understanding of the benefits of the institution.

Now, gentlemen, just one word more and I am done. I fully concur from my observation in all that has been said on several points. First, the South needs this money at once. It is an urgent case. Are you aware, gentlemen, that the average school life, reckoned by months, of the average boy east of the Alleghanies is four years; the average school life of the Western boy, reckoned by months, is three years; the average school life of the white and colored school boy in the South is less than two years; the average school life of the average Southern boy is not one year?

This is a turnpike gate through which these children are streaming, and while you are debating and consulting on the feasibility of different methods, generation after generation, you may say, are streaming through.

What is to be done should be done at once to meet the great demand of the present.

In the next place, money enough ought to be given to do the work at once. If the roof of your house is on fire and you are obliged to put it out by carrying water in buckets it does no sort of good to have a ladder that reaches to the second-story window. You are just as badly off as if you had no ladder. What you want is a ladder that reaches to the roof, that will take you up where the danger is. The school system of the South to-day does not reach the full magnitude of the difficulty. Give enough at once to enable the school authorities to put a good school on the ground everywhere, and the difficulty is met.

One thing more, gentlemen. I am acquainted with the State superintendent of instruction, I believe, in every Southern State. I am acquainted with the State school board, I think, of every Southern State but two or three. I have studied with great care in the records of all those offices their methods of distribution of money. I believe there is no set of men in this country who are handling a moderate amount of money with greater economy, with greater fidelity than these gentlemen. It seems to me it would be a great mistake in distributing such funds as you give to put into each of these States a dual administration. If that should be done, I believe that at once $100,000 or $200,000 of money would be thrown away, virtually, for supervision. I believe, if there is any set of men in this country that can be trusted to administer a fund of $10,000,000 or $15,000,000 in thirteen or fourteen States with fidelity it is the school authorities of those States, and, therefore, it seems to me that this money should go directly to the children through the accustomed channels, of course being guarded by all proper safeguards in the central power.

Among the cities of the South, no city has done so much as the city of Charleston. I know all those cities. No city has done so much with so little help as the city of Charleston. We have to-day two representative men with us. We have the mayor of Charleston, who represents what has been done in that city. We have, in another citizen of Charleston, a young gentleman who is a fine representative of the kind of young school men that we must rely on to do this work through the country. If your time and patience will permit, it will give me great pleasure to introduce to you the mayor of Charleston, Mr. William A. Courtenay.

ADDRESS OF W. A. COURTENAY.

The CHAIRMAN. We shall be glad to hear from Mayor Courtenay.

Mr. COURTENAY. Mr. Chairman and gentlemen: Having in view the great pressure upon your time, I can best show my appreciation of the honor you have done my city by limiting what I have to say to a very brief statement of facts.

I will say that about twenty-five years ago we commenced in Charleston the system of public schools which was then being spread over the country. There were in 1860 four large, substantial brick school buildings of modern construction, calculated to seat comfortably eight hundred pupils each, which in the then condition of our affairs was ample for the children that were then being educated. One of these buildings was destroyed by the fire of 1861, so that when we resumed our school work in 1865 or 1866 we had three school buildings with an average capacity of eight hundred seats, and we took the Shaw Memorial School into our public school system, which had been erected in 1865, making the same number of school-houses and about the same number of comfortable sittings. We have made an equal division of those school-houses—two are for white children and two are for colored children—and there are in the Morris street school (which is the largest colored school we have) eighteen hundred children packed into accommodations intended for eight hundred.

That is our school situation to-day. We have been for five years levying a small tax, and a new school building will be completed this year which will somewhat relieve the pressure, but we need really two or three more commodious buildings for school purposes, which we shall build in time when we can raise the money.

Now, gentlemen, in addition to the tax which is common all over the State of South Carolina, a constitutional tax of two mills, Charleston has paid during these last fifteen years an additional tax of from one to one and a half mills for the purpose of giving accommodations such as we have to give in these very crowded school-houses to a portion of the children of the city. I need not tell you that what was intended to accommodate three thousand children will not accommodate six thousand, and that although there are over four thousand children crowded into the schools, there are children who cannot get a place inside the school-house to stand or sit, and are, therefore, not being educated. We have a very large city debt, and we have a large amount of charities to distribute every year, orphan houses and hospitals; the expenses of the city government are very nearly as much as those of the State; we have reached the limit of taxation; and we look naturally to the United States Government to come to the assistance of the city, the State, the South, and the country generally in illiteracy, and make some provision by which this great trouble can be cured.

I made a rough calculation hastily this morning without the data to make it accurate; but I assert here that the city of Charleston has paid for education over and

above the State taxation since the close of the war somewhere between four and five hundred thousand dollars; and we will continue to do the best we can under the circumstances. But in view of the great interests which are pressing upon us in many ways because of the want of improvements in our city, and our great industries, which take from fifty to seventy-five thousand dollars a year, nearly 10 per cent. of the whole income, we feel that we can with some confidence come here and express our views in connection with all other sections of the country for universal and immediate aid.

If the gentlemen of the committee will be kind enough, I should like my friend, Mr. Legaré, to occupy the remainder of my time.

ADDRESS OF J. L. M. CURRY, BRYAN.

Mr. Curry. Mr. J. L. Legaré is the young gentleman who has been selected by the vote of the [illegible] to speak for the State.

Mr. Legaré. Mr. Chairman, I would much prefer to remain in the audience, with so much [illegible] before me, to hear them. Were it not that [illegible] I would not speak; but I think by giving you a pictorial image of the city of Charleston in facts and figures, that concrete thing, I can show you that even municipal aid added to State aid, with all the agencies of private education, in an old community, and coming from the city that doubles the State aid, still we stand appalled before a tide that we cannot meet nor control. It is only because the city of Charleston is a representative community of the South and expresses the conditions of all those States, and in a more favorable way than the country districts, that I will give you the facts and the figures relating to that community, because those facts and figures will bring home the question in its reality and show really what is our necessity and our danger.

That city is more favored because it has in it the seeds of a cultured society; it has in it men of mighty powers from the past, and those men are there, and they think, and they feel, and they see what is upon us. It has in it not only that, but men who have a sense of duty and men who have conscientiously risen to all the burdens of this occasion.

Why, gentlemen, in 1860 the city of Charleston had an educational plan greater than any Southern city. It had a system of public schools in which there were four thousand white children, beside large private schools, which fully met all the demands of that city. To-day it has that same educational plan, and in those schools are four thousand children, two thousand white and two thousand colored. There is an equal division of the school facilities. To do that, the city of Charleston has to add to what the State revenue is for schools just as much again. It pays this year $72,000 in a city of fifty thousand, in which there are twenty-three thousand whites and twenty-seven thousand colored, the colored paying 3 per cent. of the tax. After we have raised the local tax, double what the State gives, we find that we only have four thousand children in the schools; that is, we only have in schools what we had in 1860 of whites. More cannot enter the schools; they are packed.

Gentlemen, the tax of a citizen of the city of Charleston to-day is 3½ per cent. on every dollar of real and personal property. The city debt of the city of Charleston requires the levy of ten mills. Repudiation we cannot go to. There is 1 per cent. levying in that city for the debt of the municipality. Then there is the State debt. With these heavy burdens, by the census and by the report of the superintendent of schools of the city of Boston, we pay on a ratio one-third more than the city of Boston pays for its whole system of education, primary and classical. We pay to-day one-third more than the city of Boston does in the face of a debt of five millions upon the city of Charleston.

Gentlemen, when his honor the mayor came to the control of that city, in the same spirit of zeal and in the same interest that he overlooked all the departments, we got at the facts and the figures, and he said, it is the duty of the city, simply as a representative city of the South, and on behalf of all, to reveal to the country this terrible and appalling condition, to say to them, here is a national calamity: it is common in its origin to the people of this country; it is equally common in its evils and in its effects. We thought, and the city of Charleston and all the men there think to-day, that the National Government alone can help us—not do for us, but simply help us in

that which we cannot do. If the tax goes above 3½ per cent. it is a dismemberment of society. We simply ask you to hold up our hands; we simply ask you to roll back that tide. Where it will sweep we know not, and I, in all deference, do not think that all the wisdom here can tell us where it will sweep. We ask you do not let it overwhelm us and you. We thought and were led to believe that that Government, which, under the power of the Constitution, has the right to provide for the public defense referring to the time of war, and for the general welfare referring to the time of peace (for surely that was in the mind of the framers of the instrument), would come to our assistance in this time of calamity. We were led to believe that that Government which, when the cries came from the Mississippi Valley under the most awful deluge of the last five decades, sent immediately and within a day, aid to those people asking for bread, we were led to believe that that same Government, acting on the same principle, would send to a more hungry people, who, if unfed, the worse will be the disaster, that bread of national life which they ask. We were led to believe that that Government which, when pestilence struck this country, in one day raised the means and sent broadcast over the land succor where small-pox or yellow fever struck, would send some relief to a more awful pestilence that is working in the body politic. We were led to believe that that Government, which, in its beneficence, looking to the general welfare of the agricultural interests of this land, sends from this national center good seeds in order that the labor of the husbandman may prosper, and that he may gather fruit and an abundant harvest—that that same Government, on that same principle of general welfare, would give us not only good seed but some good seed to plant in this waste.

Gentlemen, it is only because the city of Charleston furnishes you such an example, it is only because I think we feel it as an old community, and we know what this thing means and what is threatened all the time; it is only because it is a representative city in that regard of all our Southern communities that I have spoken.

I think, I feel, in fact I know, that it is in the mind and the heart of the assembled Representatives here from this land to help. I am sure we have not come and told our simple story in vain. We look for aid, and we expect it, and we trust that from that seed of national aid shall come great and abundant harvests that will overflow here in good government, in peace and prosperity years and years to come.

ADDRESS OF B. G. NORTHROP.

Dr. DICKINSON. Mr. Chairman, I now present Hon. B. G. Northrop, secretary of the Board of Education of the State of Connecticut.

Mr. NORTHROP. I desire to lay on your table, Mr. Chairman and gentlemen of the committee, a paper containing extracts from the speech made at Atlanta by ex-Governor Brown on the eve of his election to the Senate, an extract from the speech of Robert C. Winthrop at the Yorktown celebration, and in full a speech of Rev. Dr. Curry, bearing all entirely on this subject. And while I am up may I say that this is not a new measure, but when friends of the measure have pressed it before members of Congress in former years, the objection has been "you cannot force schools on any community; schools must answer to local public sentiment, and that public sentiment does not exist." That was the former argument. Now I say in addition to the proofs presented by gentlemen from the South as to the interest you have in that paper, I think a most remarkable demonstration of the interest taken, by the fact that ex-Governor Brown should make such a speech on the eve of his election, and it is a more remarkable fact that on the basis of that speech advocating this measure, advocating free public schools for all classes, he should be elected to the Senate of the United States by so large a majority. It demonstrates the new era in the South. I learn from friends in Atlanta that Governor Brown would not have made such a speech two years before, or, had he made it, would have been defeated in an attempt to secure an election. I think that if the plan of giving $15,000,000 for this object is carried out now, it will be worth more than $20,000,000 will be twenty years hence. The case is urgent; the need is immediate.

I will not take more of your time.

The paper laid before the committee by Mr. Northrop is as follows:

*NATIONAL AID.**

By B. G. NORTHROP.

A great and gratifying change of public sentiment has recently taken place in the Southern States in reference to the necessity of universal education. There is a growing appreciation of free schools for all classes. The fact that ex-Governor Brown, of Georgia, as candidate for United States Senator, on the eve of the election should pro-

*Reprinted from the New York Independent.

claim before the legislature such sentiments as are quoted below, is one indication of this change. The fact of his election as Senator the next day was a still more striking proof of the popularity of these sentiments. In the past States and nations have been slow to learn that, to individuals and peoples alike, ignorance means waste and weakness, if not pauperism and crime, and that right education tends to economy, thrift, and virtue. But there has been such an acceleration in the working of moral and intellectual forces that now in a decade—sometimes in a single year—are seen greater changes of public sentiment than formerly in a century. The new interest in public schools in the South is one of the most hopeful signs of the times.

The usefulness and efficiency of public schools in any town or district must depend upon the co-operation of the people. Schools cannot be imported and forced upon any community. They must grow up with the people and command their sympathy and support. The indifference to universal education formerly observed in certain States seemed to me to preclude national aid for the support of their schools. The interest *now* evinced in popular education at the South has overcome my former objections to national appropriations in favor of State schools. The trustees of the Peabody Educational Fund, through their agent and their wise benefactions, have aided in revolutionizing public sentiment and developing that popular appreciation of public schools which is essential to their success, and which promises the happiest results from their organization. Prejudice and opposition here and there of course still exist, but are evidently waning. The tide has turned. A new era has come to the South. The grand success of the Atlanta Exposition, the cordial reception there given to our governor and his official party, as well as the courtesies shown to them and to our regiments at Charleston and elsewhere in the South, certainly indicate a new era of good feeling. Before the war, Connecticut, with her remarkable variety of manufactures, held intimate commercial relations with the South. Our great thread and silk factories, and others whose exhibits at the Atlanta Exposition won marked favor, have initiated measures which will make Connecticut wares again familiar in the stores and households of the South.

But far above all business interests, it is our duty and privilege as a nation to rescue the South from "the barbarism of ignorance." The South asks this aid, and needs it, and now deserves it. This necessity has been created by the war. As pressing emergencies justified war measures, though admitted to be of doubtful constitutionality, so now Congressional aid to State schools may be defended as a peace measure essential to the preservation of the republic. The first duty and right of a nation is self-preservation. This implies the right to support schools where the destitution which the nation itself has caused makes it impossible for the people unaided to maintain them.

The plan of aiding schools by the interests of a fund to be gradually accumulated from the sale of public lands involves a delay as senseless and fatal as waiting to summon a physician till the patient is dead. The average school age is short. Many generations of children must pass that brief period before the interest of such a fund, distributed over many States, could yield any appreciable aid in each county and township.

The emergency is urgent and immediate. Fifteen millions appropriated at once are sure to avail more than twenty times that amount will twenty years hence. Let good schools be maintained for ten years by national aid, and they will then be perpetuated without such help. Their results will soon turn doubters to believers and honest opponents to friends. After a full trial there would be no danger of a retrograde movement. No instance of the abandonment of free schools after they have been fairly tried ever occurred in any free government. Having once experienced their advantages, the people will always maintain them.

A direct appropriation from the national treasury, distributed in proportion to illiteracy through existing local officers and under proper conditions and safeguards, would necessitate little or no additional expense in its distribution. On the other hand, the management and control of a large perpetual fund would involve cumbrous and costly machinery.

Though the South is now poor, she will soon be rich. Her resources, agricultural, mineral, and commercial, are immense. Her manufacturing interests are rapidly multiplying. An era of unexampled prosperity is near at hand. In ten years the South will be abundantly able to support her own schools, and, what is still more important, will wish to do it.

It is objected that national aid would lessen local interest and impair the sense of parental responsibility, as men value little what costs them nothing. I reply that, in spite of all the nation may do, each State, county, township, or district, yes, every parent and citizen, must still pay their fair share for the support of this central interest. The very fact of a liberal appropriation by the National Congress would elevate and dignify the school in the estimate of the people. It would enhance the interest of parents and quicken the educational spirit of the whole people. It would everywhere lengthen the school terms and lead to the erection of better school-houses.

Free schools need no defense in any State where they have been maintained long

enough to show their true tendency and influence, for there experience and observation convince the people of their necessity. They thoroughly believe in them, and mean to maintain them Malcontents are still found, who ably and earnestly attack our schools, but their assults do no harm and hardly need a reply. Their attempts to undermine the system prove its strength and their weakness, by bringing into clearer view the firm foundation of common sense and deep popular conviction on which our common-school system stands secure. In the end, opposition and discussion will help the cause of popular education.

A few men of wealth, without children, complain of the injustice of being compelled to pay for the education of children of others. But these taxes are founded primarily, not on the idea of benefiting children and patents, but on the broader view that the State has a proprietary interest in all persons and property within its bounds, and especially in the youth, that they may be well qualified for the service, whether that shall be in the various industries of life or in the field of arms. The nation claims a right to its citizens for its defense, a right to lay its equal claim on their property, time, and service. For the achievement of our independence, and recently for the preservation of our institutions, how many were called to endure toil, hardship, and death. It is a correlative truth that the nation has duties as well as rights, and one of these is the duty of securing a good common-school education to the children of all classes. It is the duty and right of the State to defend itself, by a humanizing and civilizing education, against what would otherwise become a degraded and dangerous class in society. The General Government maintains armies and navies for its protection. But better than forts and fleets, indispensable as they may be, better for its peace and security, its prosperity and protection, is universal education, which is the supreme guarantee of our liberties, the condition of our prosperity, and the safeguard of our institutions. On the other hand, universal suffrage without universal education means universal anarchy.

FROM EX-GOVERNOR BROWN'S ADDRESS AT ATLANTA.

The people of Georgia realize the fact that the world moves; that we have gone through a great revolution; that there has been a great change; and they have moved and intend to move with it; and we have to bury the dead issues and go forward with the living future. The statesmen of the South have no right to disregard the great question of popular education.

Disguise it as you may, the New England States, by their broad and liberal educational system, the splendid endowments they have given to their universities, and their admirable common-school system, have educated their people up to a point which has given them great advantage in the contest for power and place in this Government. Travel, if you please, over the broad plains of the mighty West, and you will find in most instances that the lawyer, the physician, the doctor of divinity, the member of Congress, the school-master, the literary man, the newspaper man, and the most prominent citizens in their cities and towns were educated in New England. They have imbibed New England ideas. By her educational influences New England has dictated laws to the continent. If we would elevate the people of the South to the true position of power and influence to which they are entitled, we must educate the masses of our people and develop the bright intellect in the humbler circles of life that is now left uncultivated. There is in many a cabin in the mountains or in the wire-grass of Georgia a bright-eyed, brilliant little boy, who has a diamond concealed in his breast, and neither he nor his parents know it. Send him to school long enough to rub the rough from the diamond and it will begin to sparkle. Afford him advantages to go a little further, and it will be seen to be still more brilliant, and he will soon reach the point where you can neither keep him down nor limit his thirst for more knowledge.

Under the Prussian system the talent of the masses is carefully watched, and in whatever department the natural bent seems to run the brilliant intellect is cultivated until its training has passed the stages of common schools and the universities; and the man of grand intellect, whose natural disposition runs in any particular line or art, is made master of that art. Thus the state gets the benefit of all the great intellect of the country, developed by proper training. Let us imitate the example of New England and Prussia, and our people will soon reach a point where it will be impossible to keep them in the background. They will move forward to the front, and we shall develop the great resources of the South by native intellect, aided by culture and science.

But our condition is peculiar. During the period of slavery, reasons of policy forbade the education of the colored race. They are now not only set free, but they are made citizens with all the legal rights of citizens; and being citizens, it is our duty to make of them the best citizens in our power. Much to their credit, be it said, they have shown a laudable ambition for the education of their children. We were a rich people when we went into the war, but we had to maintain our own armies for four years out of our own substance, for which we cannot now show a dollar. We lost

billions of dollars of gold that we had invested in slaves. And then at the end of the war we had to return to our place in the Union and resume our proportion of the burdens of government, and we had to pay our proportion of the war tax of the Government. The slaves were set free by the Union as a matter of necessity. They are now cast upon us as free men—a large mass of ignorance. Is it just or generous for the Union to expect us in this impoverished condition to take upon ourselves the entire burden of their education? I think no just man, North or South, who has thoroughly investigated this question, can so contend. What then should be done in this state of things? My opinion is that the Government of the Union should assume the burdens of aiding in the education of the people. I would not confine the money to the education of the colored race, but apply it alike to the education of white and colored. As we have four millions of colored people among us, we, of course, have a great deal more illiteracy than there is in New England, and we would get more of the money. But I believe the enlightened people of New England, seeing the condition in which we are placed by the abolition of slavery and the results of the war, would generally acquiesce in a measure giving us this advantage until we have reached a period when the intelligence of the different sections is placed nearer upon an equal basis.

I know this, however, does not comport with the old idea of the old régime of the South. The slavery system, while in existence, was incompatible with this view. But we must remember that we are not now living under that system. As already stated, we live in a new era, and the new South must adopt new ideas, must wake up to new energy and must stand upon the broad platform of equal rights and equal justice to all. We must conform to the Constitution and laws as they now exist; and we must see that every citizen, whatever may be his race, color, or previous condition, has every legal right to which he is entitled. Legal equality must be strictly and impartially enforced; social equality must be left to take care of itself, in the South, as it is left in every other land. We had just as well make up our minds to meet the issue fairly. The reconstruction measures must be executed in good faith, and the legal rights of every citizen must be respected and protected without regard to race, color, or previous condition of servitude. I do not wish, while I am a candidate, to mislead the representatives of the people, and I therefore state my position on this question distinctly and frankly in advance of the election which is to take place to-morrow.

FROM EX-GOVERNOR WINTHROP'S CENTENNIAL ORATION AT YORKTOWN.

Universal education, without distinction of race, must be encouraged, aided, and enforced. The elective franchise can never be taken away from any of those to whom it has once been granted, but we can and must make education coextensive with the elective franchise; and it must be done without delay as a measure of self-defense, and with the general co-operation of the authorities and of the people of the whole country. One-half of our country during the last ten or fifteen years has been opened for the first time to the introduction and establishment of free common schools, and there is not wealth enough at present in that region to provide for this great necessity. "Two millions of children without the means of instruction" was the estimate of the late Dr. Sears in 1879. Every year brings another installment of brutal ignorance to the polls to be the subject of cajolement, deception, corruption, or intimidation. Here, here, is our greatest danger for the future. The words of our late lamented President in his inaugural come to us to-day with redoubled emphasis from that unclosed grave on the lake: "All the constitutional power of the nation and of the States, and all the volunteer forces of the people should be summoned to meet this danger by the saving influence of universal education." No drought, or flood, or conflagration, no succession of droughts, or floods, or conflagrations can be so disastrous to our material wealth as this periodical influx, these annual inundations of ignorance to our moral and political welfare. Every year, every day of delay increases the difficulty of meeting the danger. Slavery is but half abolished, emancipation is but half completed, while millions of freemen with votes in their hands are left without education. Justice to them, the welfare of the States in which they live, the safety of the whole Republic, the dignity of the elective franchise, alike demand that the still remaining bonds of ignorance shall be unloosed and broken and the minds as well as the bodies of the emancipated go free!

I know whereof I speak, and have certainly given time enough and thought enough to the subject for fourteen years past, in my relation to a great Southern trust, to learn at least what that trust has done, what it can do, and what it cannot do. It has been thus far as a voice crying in the wilderness, calling on the people of the South to undertake the great work for themselves and preparing the way for its successful prosecution. It may be looked back upon one of these days, if not now, as the little leaven which has leavened the whole lump. But the whole lump must be kneaded and molded and worked over with unceasing activity and energy by every town, village, and district for itself, or there will be no sufficient bread for the hungry and

famished masses. And there must be aids and appropriations and endowments by cities and States, and by the nation at large, through its public lands, if in no other way, and to an amount compared with which the gift of George Peabody, munificent as it was for an individual benefactor, is but as the small dust of the balance.

It is itself one of the great rights of a free people to be educated and trained up from childhood to that ability to govern themselves which is the largest element in republican self-government, and without which all self-government must be a failure and a farce here and everywhere. It is, indeed, primarily a right of our children, and they are not able to enforce and vindicate it for themselves. But let us beware of subjecting ourselves to the ineffable reproach of robbing the children of their bread and casting it before dogs, by wasting untold millions on corrupt or extravagant projects, and starving our common schools. The whole field of the Union is now open to education, and the whole field of the Union must be occupied. Free governments must stand or fall with free schools. These, and these alone, can supply the firm foundation, and that foundation must at this very moment be extended and strengthened and rendered immovable and indestructible, like that of the gigantic obelisk at Washington, if the boasted fabric of liberty, for which this victory cleared the ground, is not to settle, and totter, and crumble.

LECTURE GIVEN BEFORE THE CONNECTICUT STATE TEACHERS' ASSOCIATION AT HARTFORD, OCTOBER 28, 1881.

By Hon. J. L. M. Curry, LL.D.,

General Agent of the Peabody Education Fund, Richmond, Va.

I esteem it a privilege to address an assemblage of Connecticut educators. Those who have achieved such distinguished success in their own State are most likely to regard with kindliness and patience the efforts of the friends of education in other States to place their school systems on an equally permanent and satisfactory footing. There is much false reasoning about education, as about other things, from ignorance of the facts. Prior to the war the South was not a Botany Bay, nor a heathen land, nor wholly destitute of academies, colleges, and universities. By the census of 1860 the white population of the North was about 19,000,000, and of the South about 8,000,000. The North at that time had 205 colleges, 1,407 professors, and 29,044 students, while the South had 262 colleges, 1,488 professors, and 27,055 students. For these institutions the North expended $1,514,688 and on academic institutions $4,663,749. For similar institutions the South expended, respectively, $1,662,419 and $4,328,127.

In war, diplomacy, jurisprudence, and politics the South had had some share. Washington, Jackson, Scott, and Taylor; Marshall, Taney, Legare, and Rives; Calhoun, Madison, Clay, and Polk; Henry, Forsyth, and Jefferson were respectable men and not the outgrowth of barbarism or of an inferior civilization. Some of our cities and towns, Charleston and Mobile, for instance, had well-sustained and efficient public schools, but the admission is frankly made that in free public schools the South was deficient and very far behind the North.

It may aid in a proper understanding of the subject to inquire briefly why universal free education languished at the South before the war, and I have no hesitation in saying that African slavery was the chief reason. Slavery was not the offspring of yesterday. It was the slow and gradual growth of hundreds of years. The slave-trade was coeval with the settlement of the colonies and was encouraged by statutes and by royal proclamations through the reigns of Elizabeth, the Stuarts, and William III. Lord Somers declared the trade to be highly beneficial to England. In 1760 South Carolina passed an act prohibiting the importation of slaves, which Great Britain rejected with indignation. Massachusetts, at an earlier day, had fitted out a vessel, put aboard the Africans landed on her soil, and sent them back to their native land, and her early anti-slavery acts were frustrated by the mother-country. As one of the justifications for independence, Jefferson introduced into the original Declaration of Independence, the refusal of Great Britain to heed the remonstrances of the colonists in opposition to the introduction of slaves. Several States of the Union continued the slave-trade until our Government prohibited it. Few persons have any conception of the persistency and strength by which slavery was fastened and riveted upon the Southern States. While English courts, with a great flourish of trumpets, were declaring Somerset free, Great Britain was forcing slavery on the colonies of the New World. Old England and New England and the South are responsible for slavery, and diatribes and recriminations and legislation, unfortunately, cannot eradicate the mischiefs and misery of its introduction. A Greek historian advised his countrymen when they cast their mutual failings in one another's teeth, to go home, each with the burden of his own misdoings.

The Dutch vessel which, in August, 1620, six months before the Mayflower landed its noble cargo on Plymouth rock, entered James River with twenty negroes for sale, was a Pandora's box, full of dire calamities for the South and America. It is said that the same ship which brought the Pilgrim Fathers afterwards brought slaves to this country. However that may be, from small beginnings slavery grew, and from various causes slave labor was profitable in the South. Slavery sparsified our population, created a kind of aristocracy, among whom, as Burke said, "freedom was to them not only an enjoyment but a kind of rank and privilege." Slave-owners held baronial estates, were surrounded by a host of menial dependants, lived luxuriously, dispensed a cordial and magnificent hospitality, "combined with the spirit of freedom the haughtiness of domination," and free public schools became unnecessary or impossible. Slavery retarded increase of population and diffusion of wealth. Norfolk was once larger than New York and had more exports. Free labor, governmental discriminations, and general education reversed this condition. Slave labor is more costly than free labor, concentrates labor and capital on a few products, discourages manufacturing and higher mechanical pursuits, and thus prevents dissemination of wealth and the development and growth of varied industries.

The sudden abolition of slavery was the most wonderful social and politico-economical revolution that ever occurred, and stands out on the historic page in startling isolation. The South rejoices that the negroes are free. The war decimated our white male population, paralyzed industries, closed schools and colleges. It was followed by a new and untried labor system, by the depreciation and ruin of securities by bankruptcy of corporations, by harsh and irritating social and political friction and by some peculations and robberies that put to blush the "prætors, præfects, and quæstors, the host of plunderers" that came "at the heels of Lucius Muræna, the pro-consuli;" and these various causes brought universal depression and impoverishment. Take a few illustrations. The taxable property of Georgia in 1860 was about $750,000,000; in 1880, $238,000,000. In 1860 the wealth of the State, exclusive of the value of slaves, was over $500 per capita. In 1880 the wealth per capita is about $154. The taxable property of Virginia in 1860 was $585,099,382.77; in 1880, $324,955,98[illegible]. Dexter A. Hawkins, esq., says: "The assessed valuation for taxation of property, real and personal, in North Carolina, South Carolina, Florida, Georgia, Alabama, Mississippi, Louisiana, and Texas, in 1860, was $3,244,239,406; in 1870, $1,830,263,180—shrinkage in ten years of 43¼ per cent." We may epitomize the status of the South as ruin of landed interests, destruction of incomes, encumbered estates, heavy burdens, collision of races, mortification of defeat, disorganization of society, upheaval of everything regarded as fixed and stable, small immigration of permanent citizens, flocking of vultures, hopelessness, and despair. This is descriptive of the intelligent and subjugated race. Add the negroes, suddenly emancipated, intoxicated by freedom naturally misunderstood and misapplied, deluded by false and wicked promises, inflamed into a suspicion and distrust of their former masters, and in a state of abject poverty, with nothing but physical health and freedom.

Macaulay in graphically describing the inquiry by Parliament into the affairs of India while under the control of Lord Clive, represents the indignant officer, after stating the position in which his victories had placed him—princes dependent on his pleasure; opulent cities afraid of being given up to plunder; wealthy bankers bidding against each other for his smiles; vaults piled with gold and jewels thrown open to him alone—as exclaiming, with an oath, "Mr. Chairman, at this moment I stand astonished at my own moderation." So after this recital of stubborn facts, the American patriot must contemplate, with devout astonishment and gratitude, the increasing harmony of the reunited States, the fellowship of feeling elicited by the patient fortitude and untimely death of the murdered President, the rapid recovery of lost wealth, and the marvelous transformation in habits, thoughts, educational systems, and civil institutions of the lately belligerent and impoverished States of the South.

Notwithstanding the drawbacks and obstacles, the South has made cheering progress in the work of universal education. In the lapse of a few years every Southern State has incorporated into organic law and put upon the statue book a system of free public instruction. Every State has a superintendent of schools. Communities are supplementing by local taxation the State revenues. Educational journals are published in seven States, and normal schools are rapidly growing into favor. While a few "old fogies," too rigidly conservative, honestly oppose gratuitous instruction, the general sentiment is healthy, as is evinced by the lack of organized opposition, by the generous and intelligent advocacy of the press, and by the decided expressions of approval in party platforms and by candidates for office.

In some localities there is an unequal distribution of the means of education. While there may be occasionally an accumulation beyond local wants, generally the educational districts are necessitous. In 1785 and 1803, Congress in organizing territorial governments reserved the 16th section of every township for schools in that township. In 1848, the reservation was doubled, but no Southern State gets the benefit of this princely increase.

From the school officers of every State comes up an earnest cry for more money. Sagacious purposes and patriotic endeavors are hampered, if not defeated, by deficiency of means.

The education afforded during a few brief months is insufficient and imperfect, far below what is required by the increasing intelligence of the age for success in business, for the right discharge of the duties of citizenship and of true manhood and womanhood.

Much of the power used in the schools is wasted from misdirection, from not being economically or scientifically applied. Schools need more efficient superintendence; school teachers are not recognized as public functionaries, nor adequately rewarded. Teaching is not duly appreciated as an art, a science. The utmost diligence, the wisest and most liberal efforts, need to be put and kept continuously in operation for training teachers, and fitting them in intelligence, accomplishments, tastes, habits, social respectability, and professional skill, for their peculiar and most important work. In the execution of their sacred trust, the Peabody trustees, in pleasant co-operation with the State systems of instruction, are seeking to stimulate and aid the Southern States in the better preparation of teachers for public schools.

Of more importance is the fact that multitudes of our fellow citizens are in a state of perilous ignorance, perilous to themselves, perilous to us, for whose education there is, and in present circumstances can be, no adequate provision. This is a present and positive peril. Year after year an ignorant and needy race is "spawning in the prolificness of wretchedness." Swarms of neglected children are growing up "into hordes of ignorance, idle, and, too often, depraved and vicious and godless men and women." We are committing political suicide to hide our heads or avert our eyes. Let us with searching gaze look upon the present and onward into the future, "with the prescience which requires no gift of prophecy"—only the employment of sober reason and enlightened patriotism.

What is now a *present* need will become heavier and more imperative to-morrow. How shall it be met?

(1.) Private and ecclesiastical benefactions have been munificent, but they are spasmodic, inadequate, not in continuous succession, and are liable to misapplication. It is chimerical to suppose that individual benefactors or churches can achieve the great and permanent work of universal education.

(2.) Grandly as the Southern States have done, it is impossible for them to supply sufficient funds for the daily multiplying demands. State resources are inadequate to maintain and perfect the machinery now in motion, to keep schools in activity for eight or ten months in the year, to build and equip houses, and train and pay teachers. The South has a school population of about 5,000,000, and pays annually for common school education over $7,000,000. To educate universally and properly would require an annual tax of $30,000,000 or $40,000,000, and it is absurd to ask or expect the South to raise for free education three times as much as Connecticut or New York does.

(3.) The sum sufficient to maintain a comprehensive and permanent system of free schools—ever improving and flexible in its adaptation to shifting exigencies—must be furnished in large measure by the Federal Government. National aid is indispensable. The Government must deliberately and courageously determine, as an imperative duty of self-preservation, to aid the States in keeping alive and improving *their* systems of public instruction. The cost of the education of the people will be more than repaid in better regulated and more thoroughly developed industry, in fewer demands of poverty, in social order, in checks on improvidence, waste, pauperism, and vice. The duty of the Federal Government to render prompt and substantial assistance can be placed on grounds higher than mere material good. This is an era of centennials. Review of the past, congratulations on the present, casting the horoscope of the future, engage million minds and tongues and pens. The growth of our country outstrips imagination. We smile complacently as we read Abbé Raynal's prediction, made at the beginning of this century, that our population would never exceed ten millions. In area, population, means of transportation, products, our growth has been immense. We felicitate ourselves that our experiment of self-government has been thus far a success, and yet the glory achieved only enhances the magnitude of the trust, the weight of the responsibility, to transmit unimpaired and fortified the representative institutions we have inherited. The basal idea of those institutions is the civil equality of man as man, independent of distinctions of race or birth or property. Suffrage is not an inalienable right, but an incident, or, at best, a matter of wise expediency. It is not based on manhood, on mere physical attributes. Behind the ballot should stand intelligence, integrity, freedom, patriotism. Such writers on the English Constitution as Montesquieu and Blackstone, in writing on suffrage, concur that those should be excluded from voting whose situation is such that they cannot be presumed to have a will of their own, or, what is equivalent, an honest or independent or intelligent will. The elective franchise, as conferred by State and Federal governments, is not likely to be withdrawn or restricted. Having been granted, it behooves us to see that the boon shall be an instrument of good, and not of evil. It seems a truism that education and

the privilege of voting should be coextensive. One invested with this prerogative of freedom, having such potencies, should obviously be able to read the names on the paper which accomplishes noiselessly in America what in other lands requires standing armies or a revolution. Mere suffrage is not a safeguard against oppression or dictatorship. It does not necessarily insure peace, prosperity, or a virtuous administration. A mass of ignorant voters awakens fearful apprehensions. The adult illiteracy in the United States is appalling. The aggregate vote of the United States at the Presidential election in 1880 was 9,204,426. The vote in the Southern States was 2,763,504. Of the 1,580,000 illiterate voters in the United States the Southern States furnish 317,281 white and 820,022 colored. In Connecticut no citizen unable to read his ballot is allowed to vote. That is for your protection, but the illiterate voter in Louisiana or South Carolina may affect you as seriously as an illiterate voter in Hartford. In the last Presidential election, a multitude of the voters did not know whether their "tickets" contained the names of the electors for Garfield or for Hancock. A large portion of such men vote as dead machines, are the tools of demagogues, and are quite as likely to ostracise Aristides and sustain repudiation as to uphold the virtuous and rebuke dishonor. This illiteracy is a standing menace to republican institutions. It is a temptation to political profligacy and dishonor. It is a severe strain of what Heraclitus, according to Sir William Temple, called "the only skill or knowledge of any value in politics, *the secret of governing all by all.*" It summons every patriot, in every part of the Union, to take prompt and efficient steps for its cure or removal. This problem of national help, closely allied to civil-service reform, overshadows all questions of party politics, as "free governments must stand or fall with free schools." Oh, that some broad-minded statesman, like your own Hawley, would espouse the cause of the imperiled republic, and consecrate unceasingly his noble powers to the cause of universal education!

Much of this illiteracy of the South is among the negroes. For it they surely are not culpable. The Government has made them its wards. The North gave them freedom. That is your unshared glory. We at the South rejoice as much as you possibly can in the emancipation of the slaves, but we had no part or lot in the achievement. You had much to do in introducing them into the country. You liberated them, you made them citizens, you enfranchised them. If the Constitution gave power to free and enfranchise then why "stick in the bark" about educating them and fitting them for freedom and citizenship? As I heard last week at Yorktown from one than whom New England has furnished none nobler and purer (Mr. Winthrop): "Slavery is but half abolished, emancipation is but half completed, while millions of freemen with votes in their hands are left without education." During the civil war gigantic sacrifices, and limitless expenditures were made to save the Union. There are other enemies more insidious and dangerous than organized hosts in battle array led by experienced commanders. An influence, noiseless and unseen, poisons society, corrupts the fountains of justice, sits like a juggling devil over the ballot-box, makes elections a farce and a crime, causes demagogism and fraud to run riot, puts incompetence, conceit, and villainy in high places, and endangers the ark of our free, representative institutions.

Our last four Presidents, looking over the whole country and speaking with broad patriotism and official weight, have united in urging the necessity of governmental aid. General Grant, in his message announcing the ratification of the fifteenth amendment, says: "I would call upon Congress to take all measures within their constitutional power to promote and encourage popular education throughout the country, and I call upon the people everywhere to see to it that all who possess and exercise political rights shall have an opportunity to acquire knowledge which will make their share in the Government a blessing and not a curse."

President Hayes, in 1880, repeats and enforces a former recommendation. "The means at the command of the local and State authorities are, in many cases, wholly inadequate to furnish free instruction to all who need it. This is especially true where, before emancipation, the education of the people was neglected or prevented in the interest of slavery. Firmly convinced that the subject of popular education deserves the earnest attention of the people of the whole country, with a view to wise and comprehensive action by the Government of the United States, I respectfully recommend that Congress, by suitable legislation, and with proper safeguards, supplement the local educational funds in the several States where the grave duties and responsibility of citizenship have been devolved on uneducated people, by devoting to the purpose grants of the public lands, and, if necessary, by appropriations from the Treasury of the United States."

President Garfield, in his inaugural, uses these emphatic words: "All the constitutional power of the nation and of the States, and all the volunteer forces of the people, should be summoned to meet this danger by the saving influence of universal education." *

* Since this address was made, President Arthur in his message adds his voice to that of his predecessors.

"There is now a special reason why, by setting apart the proceeds of its sales of public lands, or by some other course, the Government should aid the work of education. Many who now exercise the right of suffrage are unable to read the ballot which they cast. Upon many who had just emerged from a condition of slavery, were suddenly devolved the responsibilities of citizenship in that portion of the country most impoverished by war. I have been pleased to learn from the report of the Commissioner of Education that there has lately been a commendable increase of interest and effort for their instruction; but all that can be done by local legislation and private generosity should be supplemented by such aid as can be constitutionally afforded by the National Government. I would suggest that if any fund be dedicated to this purpose it may be wisely distributed in the different States according to the ratio of illiteracy, as by this means those localities which are most in need of such assistance will reap its special benefits."

The Bureau of Education has, through its accomplished head, ably and persistently pressed upon Congress this national duty. The trustees of the Peabody Education Fund, through a committee, consisting of Hon. A. H. H. Stuart, Chief Justice Waite, and Hon. W. M. Evarts, have, in a very able paper, memorialized Congress on the vital necessity of national aid for the education of the colored population of the Southern States.

A foreign traveler, in the early part of this century, predicting the universal adoption of the French tongue by civilized nations, thought it a not unreasonable requisition that the Americans should adopt the French as their vernacular. Our mother-tongue, as the vehicle of thought and feeling, as the record of what English-speaking people have wrought for literature and science, for popular and religious freedom, can not be readily surrendered, but we can strive to rise to the height of the great responsibility, and adopt, as our national motto and aim, the inscription upon the gigantic statue to be erected in the harbor of New York by some enthusiastic French admirers of our country—LIBERTY ENLIGHTENING THE WORLD. Let it be our high endeavor and exalted privilege to give new meaning and luster to the sacred name of Liberty, by separating it from all crude notions of license, of lawlessness, of arbitrary dominion of mere numbers, of passionate and reckless individualism, and by identifying it with self-imposed restraints, clear recognition of the equal rights of others, Law, Justice, Truth, Honor enthroned and regnant, and Order as having the sanction of the Almighty. Let it be ours, as well, to enlighten the world, not by fierce propagandism, not by making our conceits the standard for other peoples, not by Procrustean uniformity, not by unholy crusades, not by deeds of violence and blood, but by the mild and persuasive teachings of virtuous example, establishing the supremacy of man over mere accidents and contingencies of birth, race, and fortune, the capacity of the people for just and honest government and liberal institutions, and demonstrating that popular will is legitimate and authoritative only when intelligently and freely expressed in accordance with preordained forms. Thus we may present to the world a people, moral, upright, frugal, industrious, truthful, vindicating the inalienable rights of man and walking in the liberty wherewith the Christ has made them free.

After the above address, the following resolution was unanimously passed by the association:

"*Resolved*, That in view of the necessity of education to the perpetuity of free institutions, and of the great and disproportionate burden which adequate provision for universal education would impose on some of the Southern States, this association expresses its conviction that it is the imperative duty of the National Government to extend to those States in which the burden and the danger of illiteracy are greatest such pecuniary aid as shall enable them to provide that all the children and youth within their borders shall receive at least an elementary education."

The State Board of Education has formally expressed "its hearty approval of the sentiments of the above resolution, and its earnest hope that the influence of Connecticut, in the National Congress and elsewhere, may be exerted in favor of the adoption of some equitable and efficient means for the accomplishment of the end proposed."

(QUESTIONS AND SUGGESTIONS.)

Dr. DICKINSON. Mr. Chairman and gentlemen of the committee, we will on our part detain you no longer with this hearing.

The CHAIRMAN. We can listen to you longer. There must be other gentlemen here who would desire to express their views, or perhaps members of the committee would like to ask questions.

Dr. DICKINSON. Before I sit down allow me for myself and for my associates to thank you most sincerely for the kind and patient attention with which you have listened to what we have had to say.

Mr. NORTHROP. I must say that this measure, I am confident, will suit the North as well as the South. I have in this paper I have handed you printed the sentiment expressed by the Connecticut State Board of Education most heartily, and also other expressions of Northern sentiment; and may I mention in the briefest form one other fact showing the great change that has occurred within the past year? This subject was advocated ably before our association at its meeting in New York, one year ago, by ex-Senator Patterson, now the superintendent of education in New Hampshire. He advocated then that the money should be distributed by a large number of Federal officers in all the States. That met but one dissent at that meeting a year ago; that is to say, a majority of this association seemed to favor his plan, but one objecting. At this meeting every member of the association has expressed his views in favor of the plan of distributing the money through existing local officers. We are a unit on that point.

ADDRESS OF REV. A. T. PORTER, D. D.

Mr. ORR. I should like to have a few words, if the committee have time, from a gentleman from Charleston, Rev. Dr. Porter.

The CHAIRMAN. We should be glad to listen to Doctor Porter.

Rev. Dr. PORTER. I thank the gentleman for calling me up. In illustration of the point made by Dr. Mayo in regard to the higher class—I mean those who are well educated and have occupied high positions in the past—I should like to state to you that for the last fifteen years in the city of Charleston I have been endeavoring to assist that class. Through the generous help of people at the North and some friends in England I have educated 2,150 boys, the sons of the representative people of South Carolina. I have in my school, on the catalogue of that school, almost every name that is known in the history of this country coming from that State, and I am safe in saying that out of the 2,150 boys who have been educated 1,800 would not have been at school at all, not having schools to go to, and no means of going if there were schools, had it not been for this help of mine. And, gentlemen, I have at this time a long list of applications, not able to take the boys in. I am feeding to-day 160 in that institution in the United States Arsenal, which was turned over to me by the Senate and House of Representatives in 1878, and I have a long list of applications from that class; and another class of persons, that I am not able to take for want of means.

If the thinking class—the superior class from education and association—have no means, if they are to go down, if we cannot educate their children, what is the power to raise up the lower class? Aid is needed, and needed now. We are doing all we can do; but private resources and private help and the help that comes from abroad is not equal to the great emergency.

SUGGESTIONS AND RESPONSES.

The CHAIRMAN. I suppose, gentlemen, that you have in your discussions settled possibly, or at least have suggested among yourselves some amount of aid from the National Government which you think it would be judicious to have appropriated. I should like to know about what amount you think is called for and can be judiciously expended.

Mr. ORR. I think it was the unanimous opinion of our body that not less than $15,000,000 would reach the emergency.

The CHAIRMAN. Is it your idea that this should be a permanent appropriation, increasing from year to year with the increase of population, or that it should be a temporary appropriation for immediate needs, trusting to the development of the future to enable the States to take care of their own system of schools?

Mr. ORR. A temporary appropriation for a term of years, say ten years. We think the aid should continue that long.

The CHAIRMAN. I observe that while you are evidently careful not to come in collision with conflicting matters that may have been suggested, yet you are apparently united in suggesting that there be some sort of governmental supervision of the appropriation or distribution of this money, and some disposition to guard against apprehended danger from the creation of Federal officials in the various States which might collide with the local authorities in the distribution of any amount that might be appropriated. I should like to inquire what sort and what extent of Federal supervision the gentlemen of this convention are prepared to recommend, if any? It seems that a year ago, from the suggestion of Mr. Northrop, the opinion was universal, with one exception, that there should be a large list of Federal officers to distribute it minutely, I suppose, in the various States, while the opinion is now reversed; and yet you express the belief that there should be some form of Federal supervision. I should like to hear what that is.

Mr. NORTHROP. I do not want it understood that by a formal vote the meeting a year ago expressed approval of the detailed plan suggested by ex-Senator Patterson

but only one individual arose and expressed dissent. My own feeling was very strong against that, and I expressed my feeling very strongly at that time. I heard no other dissent, and privately I heard many approve it. I think it was by no means the general feeling of the members.

The CHAIRMAN. I do not think there is any measure before Congress in either house that acts upon that principle or proposes to indorse it, but some form of supervision of the expenditure of $15,000,000 of national money should be necessary. It could hardly be said that the trustees of the national funds, however just the appropriation might be, were justified in giving away in surrendering the control of the expenditure of $15,000,000. Now, I should be glad, and I think that the committee would be glad, and Congress would be glad, to know the views of this convention, if they are settled, as to the kind and the extent of Federal supervision that it would be proper to provide for in any bill that might be enacted into a law.

Mr. NORTHROP. The opinion we have expressed at our meetings was that it should be through the Department of the Interior and the Commissioner of Education, with suitable guarantees such as the bill might express; that the money should be properly applied, on the condition that no second appropriation should in any case be made unless there were the amplest vouchers that the money had been in each State expended according to the purpose of Congress.

The CHAIRMAN. Now let me ask the gentlemen of the convention if they have considered whether a restriction of that kind would really be healthful or destructive to a system of schools which should be based, and the efficiency of which should depend, upon an appropriation by the National Government of as large or a larger amount than even the States themselves now make, those principally interested. Suppose, for instance, that in the State of Georgia, where you spend probably a million, the Government gives you another million; a portion of it is misappropriated, we will suppose, after the schools are once under way. The central power at Washington is a political power, more or less, of course, and upon the eve of an important election it is suggested that in Georgia they are stealing the school fund; it may be shown that five or ten thousand dollars have been misappropriated somewhere, and in consequence of that the appropriation for next year must be suspended in the State of Georgia; where would the common-school system of Georgia be with only one-half of what was depended on to make it efficient, and with what you had had for one, two, or three years before, suddenly withdrawn? The convention would hardly be willing, I think, to have that form of supervision.

VOTE OF THANKS.

Senator BROWN. I suggest, that as the hour of the Senate's meeting has arrived, they may in convention indicate something more definitely on this subject than they have.

I move that the thanks of the Committees on Education and Labor of the Senate and House of Representatives, acting jointly on this occasion, be tendered to the convention of superintendents who have honored us with their presence this morning, for the interesting addresses with which they have favored us.

The motion was agreed to unanimously.

The CHAIRMAN. Gentlemen, I cannot err in expressing to you the feeling of the committees that your addresses have been able and instructive, and that their influence will be as wide as the country itself.

The committees thereupon adjourned.

48TH CONGRESS, 1st Session. } SENATE. { MIS. DOC. No. 56.

IN THE SENATE OF THE UNITED STATES.

FEBRUARY 25, 1884.—Ordered to be printed.

Mr. VOORHEES submitted the following

RESOLUTION:

Whereas, in compliance with Senate resolution of December 4, 1883, the honorable Secretary of the Interior has transmitted copies of documents and correspondence relating to leases of lands in the Indian Territory to citizens of the United States for cattle-grazing and other purposes; and

Whereas it appears from Executive Document No. 54, of the present session of Congress, containing said copies of correspondence, &c., that several millions of acres of land in the Indian Territory have been leased to citizens of the United States for cattle-grazing purposes: Therefore, be it

Resolved, That the Committee on the Judiciary be, and they are hereby, instructed to investigate the matter of said leases, whether the same have been made in conformity to law; whether any money paid by any of the lessees under the terms of said leases have been covered into the Treasury; whether any of said lessees have attempted to survey any of the lands in said Indian Territory, belonging, secured, or granted by treaty with the United States to any Indian tribe, or has designated any of the boundaries of said lands by marking trees or otherwise; and that said committee be instructed to report by bill or otherwise at any time.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 57.

JOINT RESOLUTION

ADOPTED BY

THE GENERAL ASSEMBLY OF THE STATE OF OHIO, ON FEBRUARY 14, 1884,

Urging the passage, by Congress, of the bill (S. 691) to "confirm and declare legal the acts of certain officers of the United States."

FEBRUARY 25, 1884.—Referred to the Committee on Public Lands and ordered to be printed.

JOINT RESOLUTION relative to railroads from Marquette and Ontonagon to State line.

Whereas, June 3, 1856, Congress made a grant of land to the State of Michigan to aid in constructing two railroads, one from Marquette to the Wisconsin State line, and another from Ontonagon to same point; said grant on condition that the roads should be built within ten years, or the land revert to the United States; and

Whereas Congress by joint resolution, approved July 5, 1862, changed the route of first-named road granting lands therefor, thus abandoning one of original lines, and along the other no road has been built; and

Whereas relinquishments were made by the State in due form to the lands along both the original lines. After ten-year limitation had expired, and the State had relinquished as above stated, the Land Department treated the lands as other public land, and sold them as such, receiving pay therefor, over 800,000 acres of the same being sold, large quantities being owned by citizens of Ohio, said lands being rich in mineral, agricultural, and lumber products; and

Whereas it being recently discovered that all these titles granted by the Government are endangered: Therefore be it

Resolved by the General Assembly of the State of Ohio, That our Senators and Representatives in Congress be, and are hereby, requested to vote for and to use all honorable means to secure the passage of "Senate bill 691, to confirm and declare legal the acts of certain officers of the United States."

And that the governor be requested to forward copies of this resolution to the presiding officer of each house of Congress, and to each of our Senators and Representatives in Congress from Ohio.

A. D. MARSH,
Speaker of the House of Representatives.
JOHN G. WARWICK,
President of the Senate.

Adopted *February 14, 1884.*

UNITED STATES OF AMERICA, OHIO,
Office of the Secretary of State.

I, James W. Newman, secretary of state of the State of Ohio, do hereby certify that the foregoing is a true copy of a joint resolution adopted by the general assembly of the State of Ohio, on the 14th day of February, A. D. 1884, taken from the original rolls filed in this office.

In testimony whereof I have hereunto subscribed my name, and affixed my official seal, at Columbus, the 16th day of February, A. D. 1884.

[SEAL.]

JAS. W. NEWMAN,
Secretary of State.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 58.

STATEMENT OF FACTS

IN CONNECTION WITH

The bill now pending for the relief of the officers and crew of the United States sloop of war Cumberland.

FEBRUARY 25, 1884.—Referred to the Committee on Naval Affairs, to accompany bill S. 934, and ordered to be printed.

The following statement of facts is submitted in connection with the bill now pending for the relief of the officers and crew of the United States sloop of war Cumberland:

On the 8th of March, 1862, the Confederate iron-clad Merrimac, or Virginia, came out from Norfolk for the purpose of attacking the Federal fleet then lying in Hampton Roads—all wooden vessels.

Of these the Cumberland and Congress were lying off Newport News, the rest being anchored off Fortress Monroe, 5 or 6 miles lower down the Roads.

The Cumberland was known to have the heaviest ordnance in the fleet, and the Confederate commodore, for that reason, determined to attack her first and endeavor to sink or capture her before she could injure the Merrimac with her heavy guns.

Starting from Norfolk about 11 a. m. the Merrimac steamed down the Elizabeth River and across Hampton Roads towards Newport News, heading directly for the Cumberland. Passing the Congress she gave her a broadside, which was promptly returned by that vessel, and kept on for the Cumberland. As the Merrimac approached she was received with a full broadside from the Cumberland's heavy guns, which would have sunk a wooden vessel. The effect of that broadside settled the fate of the Cumberland. Everything outside of the Merrimac's shield was shot away—boats, anchors, chains, were swept away; but against the inclined iron roof that covered the ship itself the heavy shot of the Cumberland fell as rubber balls against a brick wall, glancing off and ricochetting into the water. Two shots from the Cumberland, however, entered the ports of the Merrimac as her guns were run out for firing, and they disabled two guns and killed two men and wounded nineteen.

The Merrimac came on under a full head of steam, and running for the fated ship rammed her iron prow into the bow of the Cumberland below the water-line.

Lieut. Commander George U. Morris (in the absence of Captain Radford on court-martial duty) commanded the Cumberland. He at once took in the situation, and met the emergency with a coolness, courage, and judgment that stamped him the hero of that day. He knew full well there was no escape for his ship. The Cumberland was a sailer; the Merrimac was a steamer. He must either surrender or sink. To surrender his wooden ship, already gored by the prow and perforated

by the shot of his invulnerable adversary, involved no dishonor. It would have been justified by all the rules of war and by any court-martial. But Morris knew that if he surrendered the Cumberland the noble ship and her heavy armament would fall into the hands of the enemy; the Cumberland would be at once towed up to Norfolk, there to be refitted and come out a second Merrimac. Better that she should sink, she and the five hundred men that were in her. And so, when called on by the Confederate commodore to surrender and avoid useless loss of life, the reply of Morris was, "I'll sink alongside, but I'll never surrender." If he could not save his ship *for the Union*, he would at least save her *from the enemy*. He would fight her to the last and go down with her. In this resolve he was seconded by his brave officers and men, and the Cumberland fought on while she sunk, firing her guns as long as they were above water, until finally the good ship was engulfed in 60 feet of water, but her flag still flew at the peak, "the emblem of the bravest, most daring, and yet most hopeless defense that has ever been made by any vessel belonging to any navy in the world." Such was the heroism of these men that it challenged the admiration of their adversaries, extorted cheers from the crews of the Confederate vessels, and received their applause in the official reports of their officers.

Over one hundred men went down and perished with the ship; but the survivors had not yet finished the glorious record of that day. Not content with the services they had rendered on board the Cumberland, as soon as they reached the shore they volunteered to serve the land batteries, and did efficient service in that capacity, preventing the enemy from hauling off and capturing the Congress, which had gone ashore.

The evidence herewith submitted shows all the facts in the case and establishes the following:

That the Cumberland in her fight with the Merrimac inflicted great damage on that vessel and entirely destroyed her efficiency as a ram. The loss of the Merrimac's prow in the Cumberland diminished her aggressive power at least 50 per cent., while the disabling of two out of her ten guns diminished the power of her ordnance 20 per cent., making the net loss of her aggressive power in this encounter 60 per cent., and leaving her only 40 per cent. of her original power with which to meet the Monitor on the next day. This is not stated for the purpose of depreciating the splendid service rendered by the Monitor on the 9th, when she certainly saved the whole Federal fleet, but simply to show how largely the gallant fight of the Cumberland contributed to the final result. The evidence shows that the officers of the Merrimac were of opinion that but for the loss of her prow she would have sunk the Monitor in the second day's fight.

If the Cumberland had sunk the Merrimac she would have been entitled, under the prize law, to her full value, over $1,000,000. Is it not within the spirit of the law, and right, under all the circumstances of this extraordinary case, that she should be entitled to the amount of damage she did to an iron-clad that it was impossible for her to sink? The bill appropriates not more than one-third of that amount.

The officers and crew of the Cumberland lost all their personal effects, money, and clothing, save what they stood in, and have received no reimbursement for these save one month's pay under a general law giving that much in case of ships sunk in service. When it is remembered that an officer's regulation outfit costs from $300 to $500, and that the outfit of a seaman bears a corresponding proportion to his pay, it will be seen how inadequate this compensation was.

After the fight was over, the Government failed to give them transrtation, and they were allowed to get home the best way they could d at their own expense, being "furloughed" instead of "ordered me," which latter would have entitled them to transportation.
Although the whole country was electrified with the heroism of these n, and meetings, held in the principal cities of the country, pledged em the grateful recognition of their services, they have never received mpensation for their losses, much less reward for their services.
The heroic Morris never received "the thanks of Congress," which uld have entitled him under the law to promotion one grade, though rmly recommended therefor by President Lincoln. The resolution of anks passed the House, went to the Senate, was referred to the Naval mmittee, and there slept until Morris died. Scores of officers were omoted for less conspicuous services. No American officer ever derved so much of his country and received so little.
As a matter of dollars and cents the men of the Cumberland are enled, if not by the letter at least by the spirit of the prize law, to the lue of the damages they inflicted on the Merrimac. But in such a se a great nation cannot afford to count dollars and cents against the od of its heroes.
The example of the men of the Cumberland, fighting their good ship n by gun until the last gun was under water, then going down with ers while the flag flew at the peak, is worth more to this country an can be told in dollars.
Most of the survivors of the Cumberland are now poor and needy in eir declining years. A sailor's life is not a provident or a profitable e. When they were in the vigor of their manhood and their country its hour of need, they freely offered their lives for the honor of the g. In her hour of prosperity will she forget or neglect them?
Congress, at its last session, gave $75,000 to the officers, owners, and ew of the brig General Armstrong for the gallant defense made by at vessel against the attack of the boats from a British squadron in 14. If the Government thus recognized the gallantry of a wooden ssel fighting wooden boats seventy years ago, should it not recognize e desperate courage of the men of the Cumberland, who fought in oden walls against impenetrable iron?

Commander Radford's official report.

[From Moore's Rebellion Record, vol. 4, p. 268.]

FORTRESS MONROE, VA., *March* 10, 1862.

SIR: It is my painful duty to report the loss of the United States ip Cumberland, under my command, on the 8th instant, at Newport ews, Va.
I was on board the United States frigate Roanoke, by order of the on. Secretary of the Navy, as member of a court of inquiry, when e Merrimac came out from Norfolk. I immediately procured a horse d proceeded with all dispatch to Newport News, where I arrived only time to see the Cumberland sunk by being run into by the rebel iron-ad steamer Merrimac. Though I could not reach the Cumberland fore the action was over, I have the satisfaction of reporting that so ng as her guns were above water every one on board must have done is duty nobly.

I send with this the report by Lieut. George U. Morris of the action, he being, in my absence, the commanding officer, and also the surgeon's report of the wounded and saved. The loss was very large in killed, wounded, and drowned, though the number cannot be ascertained. Enough is known, however, to make the loss one hundred. I send also a list of the men known to have been saved, but have no accurate means of giving the names of those lost or killed, as no officer or man brought anything on shore save what he stood in, consequently I have no muster-roll of the crew.

Very respectfully, your obedient servant,

WM. RADFORD,
Commander.

Hon. GIDEON WELLES,
Secretary of the Navy.

Lieutenant Morris's official report.

[Moore's Rebellion Record, vol. 4, p. 269.]

NEWPORT NEWS, VA., *March* 9, 1862.

SIR: Yesterday morning at 9 a. m. I discovered two steamers at anchor off Smithfield Point, on the left hand or western side of the river, distant about twelve miles. At 12, meridian, I discovered three vessels under steam, standing down the Elizabeth River towards Sewall's Point. I beat to quarters, double-breeched the guns on the main deck, and cleared ship for action.

At 1 p. m. the enemy hove in sight, gradually nearing us. The iron-clad steamer Merrimac, accompanied by two steam gun-boats, passed ahead of the Congress frigate and steered down toward us. We opened fire on her. She stood on and struck us under the starboard fore-channels. She delivered her fire at the same time. The destruction was great. We returned the fire with solid shot, with alacrity.

At thirty minutes past 3 the water had gained upon us, notwithstanding the pumps were kept actively employed, to a degree that, the forward magazine being drowned, we had to take powder from the after-magazine for the 10-inch gun. At thirty-five minutes past 3 the water had risen to the main hatchway, and the ship canted to port, and we delivered a parting fire, each man trying to save himself by jumping overboard.

Timely notice was given, and all the wounded who could walk were ordered out of the cockpit; but those of the wounded who had been carried into the sick bay and on the berth-deck, were so mangled that it was impossible to save them.

It is impossible for me to individualize. Alike the officers and men all behaved in the most gallant manner. Lieutenant Selfridge and Master Stuyvesant were in command of the gun-deck divisions, and they did all that noble and gallant officers could do. Acting Masters Randall and Kennison, who had charge each of a pivot-gun, showed the most perfect coolness, and did all they could to save our noble ship, but I am sorry to say without avail. Among the last to leave the ship were Surgeon Martin and Assistant Surgeon Kershaw, who did all they could for the wounded promptly and faithfully.

The loss we sustained I cannot yet inform you of, but it has been very great. The warrant and steerage officers could not have been more

prompt and active than they were at their different stations. Chaplain Lenhart is missing. Master's Mate John Harrington was killed. I should judge we have lost upward of one hundred men.

I can only say, in conclusion, that all did their duty, and we sank with the American flag flying at the peak.

I am, sir, &c.,

GEO. U. MORRIS,
Lieutenant and Executive Officer.

Account of the fight.

From the Baltimore American.—Moore's Rebellion Record, 1862, vol. 4, pp. 273–4.]

The Merrimac made her appearance, coming out from Elizabeth River about noon on Saturday. She stood directly across the roads toward Newport News. As soon as she was made out and her direction ascertained, the crews were beat to quarters on both the Cumberland and Congress, and preparations made for what was felt to be an almost hopeless fight, but the determination to make it as desperate as possible.

The Merrimac kept straight on, making, according to the best estimates, about eight miles an hour. As she passed the mouth of Nansemond River the Cumberland threw the first shot at her, which was immediately answered. The Merrimac passed the Congress, discharging a broadside at her (one shell from which killed and disabled every man except one at gun No. 10), and kept on toward the Cumberland, which she approached at full speed, striking her on the port side near the bow, her stem knocking port No. 1 and the bridle port into one, whilst her ram cut the Cumberland under water. Almost at the moment of collision the Merrimac discharged from her forward gun an eleven-inch shell. This shell raked the whole gun-deck, killing ten men at gun No. 5, among whom was Master's Mate John Harrington, and cutting off both arms and legs of Quarter-gunner Wood. The water rushed in from the hole made below, and in five minutes the ship began to sink by the head. Shell and solid shot from the Cumberland were rained on the Merrimac as she passed ahead, but the most glanced harmlessly from the incline of her iron-plated bomb-roof.

As the Merrimac rounded to and came up she again raked the Cumberland with heavy fire. At this fire sixteen men at gun No. 10 were killed or wounded and were all subsequently carried down in the sinking ship. Advancing with increased momentum the Merrimac struck the Cumberland on the starboard side, smashing her upper works and cutting another hole below the water-line. The ship now began to rapidly settle, and the scene became most horrible. The cockpit was filled with the wounded whom it was impossible to bring up. The forward magazine was under water, but powder was still supplied from the after-magazine, and the firing kept steadily up by men who knew that the ship was sinking under them. They worked desperately and unremittingly, and amid the din and horror of the conflict gave cheers for their flag and the Union, which were joined in by the wounded. The decks were slippery with blood, and arms and legs and chunks of flesh were strewed about. The Merrimac laid off at easy point-blank range, discharging her broadsides alternately at the Cumberland and the Congress.

The water by this time reached the berth or main gun deck, and it

was felt hopeless and useless to continue the fight longer. The word was given for each man to save himself, but after this order gun No. 7 was fired when the adjoining gun, No. 6, was actually under water. This last shot was fired by an active little fellow named Matthew Tenney, whose courage had been conspicuous throughout the action. As his port was left open by the recoil of the gun, he jumped to scramble out, but the water rushed in with so much force that he was washed back and drowned. When the order was given to cease firing, and to look out for their safety in the best way possible, numbers scampered through the port-holes, whilst others reached the spar-deck by the companion-ways. Some were incapable to get out by either of these measures, and were carried down by the rapidly-sinking ship. Of those who reached the upper deck some swam off to the tugs that came out from Newport News.

The Cumberland sank in water nearly to her cross-trees. She went down with *her flag still flying*, and it still flies from the mast above the water that overwhelmed her, a memento of the bravest, most daring, and yet most hopeless defense that has ever been made by any vessel belonging to any navy in the world. The men fought with a courage that could not be excelled. There was no flinching, no thought of surrender.

NAVY DEPARTMENT, *March* 21, 1862.

SIR: In the calamitous assault of the armored steamer Merrimac upon the sloop Cumberland and frigate Congress, on the 9th instant, which were comparatively helpless, the Department has had occasion to admire the courage and the determination of yourself and the officers and crew associated with you, who, under the most disastrous and appalling circumstances, boldly fought your formidable assailant. Exposed as you were to an opponent secure in his armor while attacking the Cumberland, to your honor and that of those associated with you, the guns were coolly manned, loaded, and discharged while the vessel was in a sinking condition, and your good ship went down with the flag at the gaff, and its brave defenders proved themselves worthy of that renown which has immortalized the American Navy.

The gallant service of yourself and the brave men of the Cumberland on that occasion is justly appreciated by a grateful country, and the Department, in behalf of the Government, desires to thank you and them for the heroism displayed and the fidelity with which the flag was defended.

I am, respectfully, &c.,

GIDEON WELLES.

Lieut. GEO. U. MORRIS,
United States Navy, Washington, D. C.

Extract from official report of Brig. Gen. Mansfield, commanding at Newport News during the action.

NEWPORT NEWS, VA., *March* 10, 1862.

* * * * * * *

The enemy then sent two steamers with Confederate flags flying and made fast on either side of her (the Congress), with a view to haul her off or burn her. As soon as I saw this, I ordered Colonel Brown, of the

Twentieth Indiana Regiment, then close at hand, to send two rifle companies (A and K) to the beach. The two rifled guns, under Captain Howard, and a rifled Dahlgren howitzer, manned by Master Stuyvesant and 14 sailors of the Cumberland, went into action from a raking position on the beach, covered by sand-banks and trees against these steamers. We here had them, at about 800 yards, to advantage, and immediately they let go their hold on the Congress and moved out of range, with much loss.

* * * * * * *

Some officers and men from the Cumberland, as they escaped to the shore, came forward and volunteered their services at our guns and afforded aid.

* * * * * * *

JOS. K. F. MANSFIELD,
Brigadier-General, Commanding.

Extract from official report of Flag-officer Franklin Buchanan, commanding the Merrimac in the action with the Cumberland.

[War of the Rebellion—Records, series 1, vol. 9, p. 8.]

NAVAL HOSPITAL, *Norfolk, Va., March* 27, 1862.

SIR: * * * The Virginia (Merrimac) stood rapidly on toward the Cumberland, which ship I had determined to sink with our prow, if possible. In about fifteen minutes after the action commenced we ran into her on her starboard bow. The crash below the water was distinctly heard, and she commenced sinking, gallantly fighting her guns as long as they were above water. She went down with her colors flying.

* * * * * * *

On the 21st instant I forwarded to the department correct lists of the casualties on board all the vessels of the squadron on the 8th. None, it appears, occurred on the 9th.

* * * * * * *

Very respectfully,

FRANKLIN BUCHANAN,
Flag-Officer.

Hon S. R. MALLORY,
Secretary of the Navy.

Extract from an account written by Lieut. Catesby Ap R. Jones, executive officer of the Merrimac, who commanded her after the wounding of Commodore Buchanan.

[Published in Southern Historical Society Papers for December, 1874, p. 200.]

* * * * * * *

We fired at the Congress on passing, but continued to head directly for the Cumberland, which vessel we had determined to run into; and in less than fifteen minutes from the firing of the first gun we rammed her just forward of the starboard fore-chains. There were heavy spars about her bows, probably to ward off torpedoes, through which we had to break before reaching the side of the ship. The noise of the crash-

ing timber was distinctly heard above the din of battle. There was no sign of the hole above water. It must have been large, as the ship soon commenced to careen. The shock to us on striking was slight. We immediately backed the engines. The blow was not repeated. We here lost the prow, and had the stem slightly twisted. The Cumberland fought her guns gallantly as long as they were above water. She went down bravely with her colors flying. One of her shells struck the sill of the bow-port and exploded: the fragments killed two and wounded a number. Our after 9 inch gun was loaded and ready for firing, when its muzzle was struck by a shell which broke it off and fired the gun. Another gun also had its muzzle shot off; it was broken so short that at each subsequent discharge its port was set on fire. The damage to the armor was slight. Their fire appeared to have been aimed at our ports; had it been concentrated at the water-line, we would have been seriously hurt if not sunk.

* * * * * * *

When we saw that our fire made no impression on the Monitor we determined to run into her if possible. We found it a very difficult feat to do. Our great length and draught, in a comparatively narrow channel, with but little water to spare, made us sluggish in our movements and hard to steer and turn. When the opportunity presented, all steam was put on; there was not, however, sufficient time to gather full headway before striking. The blow was given with the broad wooden stem, *the iron prow having been lost the day before.* The Monitor received the blow in such a manner as to weaken its effect, and the damage was to her trifling. Shortly after, an alarming leak in the bow was reported. It, however, did not long continue.

* * * * * * *

Extract from letter of Lieut. R. H. Henderson, one of the officers of the Confederate steamer Patrick Henry in the engagement of March 8, 1862.

OFFICE LOUISIANA AVENUE AND SIXTH STREETS,
Washington, December 24, 1874.

Capt. GEORGE MORRIS, U. S. N., *Georgetown, D. C.:*

CAPTAIN: Recurring to our short conversation yesterday on the avenue, I carry out now the intention which I indicated to you then.

I commanded a division of guns, called the "rifle division," on board the Confederate States steamer Patrick Henry, in the naval action in Hampton Roads, March 8 and 9, 1862, between the Merrimac (Virginia) and her consorts, the Patrick Henry and Jamestown, on the one side, and the United States frigates Cumberland, Congress, Minnesota, and the shore batteries, on the other. Having passed the heavy battery at Newport News, the Patrick Henry came upon the scene just as the Cumberland, so gallantly commanded by you, went down, bow foremost, firing a gun. I take this occasion to say that the sight of this heroic action caused great enthusiasm aboard the Patrick Henry, whose crew loudly cheered the gallant sailors of the Cumberland.

* * * * * * *

I am, captain, very faithfully yours,

R. H. HENDERSON.

Copy of affidavit of H. B. Littlepage, midshipman on board the Confederate steamer Merrimac (or Virginia) on the 8th March, 1862, during the fight with the Federal vessels at Hampton Roads.

In the fall of 1861, being then a midshipman in the Confederate navy, I was ordered to the Confederate steamer Merrimac (or Virginia) and remained on her in that capacity continuously until she was blown up, on the night of May 11, 1862, by order of Commodore Tatnall. I was present during the engagement between her and the Federal ships in Hampton Roads, on the 8th of March, 1862.

At 11 o'clock on the morning of that day, the Merrimac left the Norfolk navy-yard and steamed down the Elizabeth River to attack these ships. As we were going down the river, Commodore Franklin Buchanan, our commander, called the officers around him, and stated that he intended to run for the Cumberland first and ram her, if possible, in order to dispose of her at once, as he feared her heavy guns might penetrate our armor. After passing out of the river, we headed for the Cumberland and Congress, which lay off Newport News. We passed the Congress, delivering a broadside as we passed, and receiving her fire in return, which did us no perceptible damage, and then moved straight for the Cumberland with our guns all run out, their muzzles projecting beyond the armor. Just before reaching her we fired our bow gun, and received broadside at only a few yards' distance. This broadside cut one of the Merrimac's guns off at the trunnions, and the muzzle off another, tore up the carriage of her bow pivot-gun, swept away her anchors, boats, and howitzers, riddled her smoke-stack and steam pipe, and killed and wounded several men. It did not, however, stop her headway, but running at full speed, the Merrimac rammed the Cumberland under her starboard chains, nearly abreast her foremast; our cast-iron prow crushing a hole in her below water, while our stem penetrated some ten or twelve feet into her hull above water.

With some difficulty the Merrimac backed out, and extricated herself from the Cumberland, which immediately began to settle. In doing this, as we had rammed her across the tide, the force of the current broke off her prow, and it either remained in the Cumberland, or fell in the water near her. We did not discover the loss of it until the next day, when we attempted to ram the Monitor. Had we have had it then, I believe we would have sunk the Monitor as we did the Cumberland; and this was the opinion of all our officers at the time.

The Cumberland, after we had rammed her, though in a sinking condition, gallantly maintained the fight, firing her guns as long as they were above water, and then went down with her colors flying.

H. B. LITTLEPAGE.

Sworn to and subscribed before me this 13th day of December, A. D. 1882.

[SEAL.] THOS. J. MEYERS, *N. P.*

Reception to the crew of the Cumberland in New York City.

At a meeting held on the 10th of April, 1862, in honor of these brave men, in the city of New York, at the Academy of Music, the hall was densely crowded by thousands of citizens anxious to express their gratitude to the heroes. The meeting was presided over by Pelatiah Perit, esq., and was addressed by the most eminent men of the country.

The chairman paid the following tribute to these gallant men:

"Fighting to every disadvantage, they stood to their guns until, submerged in water, they could be fired no longer, and then escaped with their lives, with the loss of everything but their honor. The flag of the Cumberland was never struck, and still floats in the face of the enemy."

Rev. Dr. Hitchcock said:

"We have met to resolve that the widows and children of the brave men who fell in Hampton Roads should not suffer. Those men fought not for glory, but for duty's sake; but glory they should have."

The chairman read a letter from Captain Radford, which contained at the close a complimentary mention of Lieutenant Morris, who was in command when the Cumberland went down. Three cheers were given for Lieutenant Morris.

A sailor of the Cumberland, who was introduced for the purpose, gave the following account of the action:

"It was about eight o'clock on Saturday morning, the 8th of March, when we first saw the Merrimac. We beat to quarters, and so did the Congress. She went on the passage down to Fortress Monroe instead of coming toward our ship; afterward she stood for the ship. As she passed the Congress the brave ship poured two or three broadsides at her, but they were not any more than throwing peas or apples at her, when she came at us. Could we have kept her off at arm's length she never would have taken us; but she ran her steel prow into us, when Mr. Buchanan, the man who commanded her, asked our commander, 'Will you surrender?' He answered, 'Never will I surrender.' Then he (Buchanan) took his infernal machine off, and ran it into us again. He then asked again, 'Mr. Morris,' calling him by name, 'will you surrender that ship?' 'Never!' said he, 'if you sink her.' Well, my friends, the Cumberland had to go; and we tried to do our duty, as I hope that every seaman that has to come after us will do his duty in like manner."

In response to loud cheers for "Morris!" the chairman stated that Lieutenant Morris had been ordered to Washington. It was proposed to give three more cheers for Lieutenant Morris. The cheers were given with a will—the crew joining in them.

Mr. Evarts was the next speaker. He read an extract from a Southern paper which paid high tribute to the heroism of the Cumberland's crew [three cheers for them]. "After this," said he, "who was there who could not give new meaning to the cry 'Don't give up the ship'? It meant something. It meant 'Don't give up the ship, although you go to the bottom in her.'"

The Hon. George Bancroft then spoke. He said: "We must remember the wonderful condition in which these brave men were placed—not face to face with an equal enemy, but met by a new and untried power, that proved itself vastly superior to anything with which they were acquainted. And not only were they unable to resist the iron, but the Cumberland was so badly wounded that they could see how many sands might yet flow out before she was destined to go down. It was under these circumstances that our friends who were with us manifested that extraordinary self-possession that led them even to the last to continue the combat. These men were entitled to congratulation and to the gratitude of every one who had regard for the cause of liberty. Yes; they were the champions of humanity, the champions of the great cause of the people, and their names should be imperishable, their glory should never fade. In the name of this vast assembly he gave thanks to them all. Let us rejoice that these men went down fighting to the last, and that

ıen they went down they left the star-spangled banner of the Cum-
rland flying at her peak; the emblem that no dangers, no perils, no
emies, not ocean itself could destroy our liberty."
The meeting adopted resolutions that a recognition of their gallant
nduct was due these men from the Government.

The only reward they ever received was one month's pay under a gen-
ıl law, which did not begin to reimburse them for their clothing and
rsonal effects lost on board the Cumberland, when she went down,
:luding the money they had in their chests, having been paid off for
: previous month a few days before.

Extract from the Virginia City Enterprise.

This paper, commenting on the failure of the contractors in their
tempt to raise the Cumberland, after the war, used the following lan-
ıage:

We are glad the jealous sea has thus far refused to give up its most
orious wreck, and hope it will forever baffle the impious hands who
ek to despoil it of its noblest treasure. The Cumberland is the sep-
chre of scores of heroic hearts; let not that sepulchre be violated.
mong the grand events of the war there is nothing that compares
ith the acts of the men who went down to death in that immortal
igate. Even the foe that crushed in and sank the ship gave a cheer
f admiration for the dauntless souls that peopled her rent decks.
Vhen the ship was sinking, so that the presuming waters were run-
ing into the guns, like a dying gladiator's cry they rang out in a full
roadside of defiance; and that broadside was taken up in a cheer by
ıe crew, which nothing but the engulfing waters could still. When
ll else had disappeared, the topmast still remained above the flood,
nd upon its peak the old flag hung out against the sky, a symbol for
ıe astonished rebels to read, that though fleets might fall before them
nd brave men might be overcome, the flag would still remain unstained
nd immortal, to be borne by other hands and above other decks to
:rtain victory.
The whole world held its breath to hear the story of the last deeds of
ıe Cumberland's crew. History was sought for a parallel to their acts,
ut no parallel was found. It was the Thermopylæ of the sea, some-
mes equaled by an individual but never by a ship's crew. When the
ıip was sinking a summons to surrender was answered as the remnant
f the Old Guard answered at Waterloo, and the world asked in awe
nd wonder, "What manner of men were they who could laugh death
) scorn in broadsides and with cheers?"
We raise monuments to the illustrious dead upon earth. Let us not
ermit this grandest of tombs to be desecrated. Let the sea heave and
vell above that sunken deck; let the tides ebb and flow over the stilled
earts below; let the winds, as they go and come, on their wild harps
ng funeral requiem above them—but keep from them the mere money-
eeker; for when at last the sea gives up its jewels at the final summons,
hen we fancy the great Cumberland will spring from its bed, every white
ail spread, every gun in place, the old flag at the peak, the old crew
ı full ranks upon the restored decks, and all the universe beside will
ave no such resurrection picture. No! No! While we reverence
atriotism and dauntless courage—while our hearts throb faster at

the memory of deeds which have no equal in the records of the ages—let us protest against despoiling hands touching that sacred sepulchre of the ocean. No other sea holds such a prize: no other nation can claim such dead. Their dying acts lifted American manhood up the world over, and in the palaces of kings it was whispered, "Surely there is some enchantment in this thing called freedom, or men could not die for a principle as these men died."

Extract from statement of A. B. Smith, pilot of the United States ship Cumberland.

[From Frank Moore's Rebellion Record, vol. 4, Doc. 82, page 272.]

On Saturday morning the United States frigate Cumberland lay off in the roads at Newport News about three hundred yards from the shore, the Congress being two hundred yards south of us. The morning was mild and pleasant, and the day opened without any noteworthy incident. About 11 o'clock a dark-looking object was discovered coming round Craney Island, through Norfolk Channel, and proceeding straight in our direction. It was instantly recognized as the Merrimac. We had been on the lookout for her for some time, and were as well prepared then as we could have been at any other time, or as we have been during the last six months.

As she came plowing through the water right onward toward our port bow, she looked like a huge half-submerged crocodile. Her sides seemed of solid iron, except where two guns pointed from the narrow ports, and rose slantingly from the water like the roof of a house, or arched back of a tortoise. Probably the extreme height of the apex from the water's edge, perpendicularly, was ten feet. At her prow I could see the iron ram projecting straight forward, somewhat above the water's edge, and apparently a mass of iron. Small boats were slung or fastened to her sides, and the rebel flag floated from one staff, while a pennant was fixed to another at the stern. There was a smoke-stack or pipe near her midlde, and she was probably a propeller, no side-wheels or machinery being visable. She is probably covered with railroad iron.

Immediately on the appearing of the Merrimac, the command was given to make ready for instant action; all hands were ordered to their places, and the Cumberland was sprung across the channel, so that her broadside would bear on the Merrimac. The armament we could bring to bear on the Merrimac was about eleven 9 and 10-inch Dahlgren guns, and two pivot guns of the same make. The gunners were at their posts, and we waited eagerly for her approach within range. She came up at the rate of four or five knots per hour. When the Merrimac arrived within about a mile, we opened on her with our pivot guns, and as soon as we could bear upon her, our whole broadside commenced; still she came on, the balls bouncing upon her mailed sides like India rubber, apparently making not the least impression, except to cut off her flagstaff and thus bring down the Confederate colors. None of her crew ventured at that time on her outside to replace them, and she fought, thenceforward, with only her pennant flying. She appeared to obey her helm, and be very readily handled, making all her movements and evolutions with apparent facility and readiness.

We had probably fired six or eight broadsides, when a shot was re-

eived from one of her guns which killed five of our marines. It was npossible for our vessel to get out of her way, and the Merrimac soon rushed her iron horn or ram into the Cumberland just starboard the ain chains, under the bluff of the port bow, knocking a hole in the ide, near the water line, as large as the head of a hogshead, and driving he vessel back upon her anchors with great force. The water came ushing into the hold. The Merrimac then backed out and discharged er guns at us, the shot passing through the main bay and killing five ick men. The water was all the while rushing in the hole made by the am, so that in five minutes it was up to the sick-bay on the berth-deck. n the mean time her broadsides swept our men away, killed and maimed, nd also set our vessel on fire in the forward part. The fire was extinuished. I cannot tell how many were wounded. The sick-bay, berth-eck, and gun-deck were almost literally covered with men killed and ounded, but the surviving ones still fought well, and every one, officers nd men, displayed the utmost heroism.

The fight lasted about three-fourths of an hour, the Cumberland firing apidly, and all the time the water pouring in the hold, and by and by he ports, as her bow kept sinking deeper and deeper. Near the mid-lle of the fight, when the berth-deck of the Cumberland had sunk below ater, one of the crew of the Merrimac came out of a port to the outside f her iron-plated roof, and a ball from one of our guns instantly cut im in two. That was the last and only rebel that ventured within ight, the rest remaining in their safe, iron-walled inclosure.

We fired constantly, and the Merrimac occasionally, but every shot old upon our wooden vessel and brave crew. Her guns being without he least elevation, pointed straight at us along the surface of the water, nd her nearness, she being much of the time within three hundred ards, made it an easy matter to send each ball to its exact mark. Probably her guns would be useless at a considerable distance, as it ppears impossible to elevate them. Finally, after about three-fourths f an hour of the most severe fighting, our vessel sank, the stars and tripes still waving. That flag was finally submerged, but after the ull grounded on the sands, fifty-four feet below the surface of the water, ur pennant was still flying from the topmast above the waves. None f our men were captured, but many were drowned as the vessel went own. We had about four hundred on board, and I suppose from one undred and fifty to two hundred were killed during the engagement nd drowned at the sinking. Lieut. George U. Morris was in command f the vessel, Captain Radford being absent on the Roanoke at a court f inquiry.

[From the Philadelphia Weekly Times of September 30, 1882.]

inking of the Cumberland. An account, by a participant, of the famous action in Hampton Roads.

By JOSEPH W. WHITEHURST.

The morning of the 8th of March, 1862, dawned finely. Not a ripple roke the surface of the bay as it sparkled in the sun. All was calm nd peaceful. A light rain had fallen the day previous, and the sails ere loosened to dry, and the men were engaged at their different duties bout the decks, cracking jokes among themselves. Little they thought ow soon their noble ship would end her career in the hottest naval en

gagement that was fought during the rebellion. The Cumberland was under the command of Captain Radford, but he being ashore at Fortress Monroe on official duties, the ship was left under Lieut. Commander George U. Morris, and, if the American Navy had been searched over, the Cumberland could not have been more nobly commanded. At 12 o'clock all hands were piped to dinner, but hardly had the men been seated before the calls of the boatswain and his mates were heard, fetching all hands up to furl sail.

APPEARANCE OF THE MERRIMAC.

Soon everything was snug aloft, and then there was heard in the direction of Craney Island a loud boom and instantly every eye was bent towards that quarter. We knew at a glance why we had been so hurriedly called from dinner, for there, heading for Fortress Monroe, could be seen the Merrimac. She was steaming slowly as if undecided what course she would take. She hauled around, headed up river, and made directly for the Congress, which vessel lay farther down the stream. It was a good move, for by so doing she could obtain the assistance of the Confederate steamers Yorktown and Jamestown, which were now seen approaching from up the river, both keeping a respectful distance from the Cumberland. We could have sent them to the bottom in ten minutes could we have got near them. In the mean time we were not idle. A spring was put out from our port quarter and the ship hove broadside to the stream. Then the drum beat to quarters, the decks were cleared for action, the battery was cast loose, and every man and boy was at his station. We were ready for the fray. My station was powder-boy for the first division on the forward part of the gun-deck, and as I stood forward and looked aft a scene met my view that will never be erased from my memory. Some of the men had their overshirts off and were bare-headed, ready to fight. There were no faint hearts among them. Every face was set with a stern resolution, and well might the brave Morris have had confidence in his crew.

THE FIERCE ATTACK.

The Merrimac was fast approaching, and, nearing the Congress, she fired a shot of defiance. Our after-pivot rang out sharp and clear in answer, sending a shot crashing against her iron sides. Running up alongside of the Congress she delivered a terrific broadside that spread death and destruction. A sheet of flame belched from the Congress's side and the thunder of her guns was heard in response. But the Merrimac paid no further attention to the Congress; she passed her, and, sheering to starboard, came on, heading directly for the Cumberland. Nearing us, she sent a shell through our port quarter, killing four marines and wounding or killing five seamen. As she closed in on us we opened with our port battery—eleven 9-inch guns, one 11-inch, and one 80-pound rifled Dahlgren. The heavy metal fell like hail on the Merrimac's sides, but made no more impression than so many rubber balls. Broadside followed broadside, yet she did not slacken her speed, but kept right on, so close to us that a man could have sprung on board of her. Then she delivered a murderous broadside, at point-blank range, that swept everything before it and sent many of our men down.

RETURNING TO THE CHARGE.

Passing us she went a mile or so up the river, then putting about with her prow down stream and under a full pressure of steam she came on as if shot from a cannon. She struck us on the starboard bow, right under the cat-head. The shock was so great that it took nearly every man off his feet and straightened our heavy chain cable out like so much whip-cord. Indeed our ship was heeled over so that her yard-arms nearly touched the water. As the Merrimac attempted to back she broke off her prow and left it in the Cumberland. She then swung alongside and delivered a broadside, afterwards firing leisurely and with terrible effect.

RESISTING TO THE LAST.

We fired broadside after broadside with a rapidity and precision that would have sent the Merrimac to the bottom in fifteen minutes had she been a wooden vessel. She fell astern, firing as she went, until she got under our starboard quarter. Then she lay to and her commander asked Lieutenant Morris if he would surrender. Morris answered, "No, damn you, I will never surrender, but will sink alongside," and he turned on his heel and ordered Quartermaster Murray to hoist the red pennant at the fore-truck. That means, on board of an American man-of-war, "No surrender." That flag and the ensign flew until the Cumberland was sunk. After receiving the answer the Merrimac steamed around, and getting in good position she struck us amidships, but having lost her prow she did no damage that way. With her guns, however, she did terrible execution. Our decks were slippery with gore and the scuppers ran red. On the gun-deck all the horrors of war could be seen. The heaviest of the fighting was done by the first division. As fast as one gun's crew would be killed another crew from one of the after-divisions would take its place.

FEARFUL SCENES.

A shell entered the ship's galley and exploded in the coppers, scattering small fragments in every direction, killing and wounding nearly every man in that immediate neighborhood. In the forward part of the ship, from the galley to the manger, lay heaps of the dead and dying. In nearly every part of the ship the form of some shipmate could be seen still in death or mangled in a horrible manner, gasping for breath. A man by the name of Burns, the captain of No. 7 gun, had both his legs shot off below the knee, but he hobbled to his gun and seizing the lock-string he fired. But what a fate was his! His gun recoiled on him and crushed him to death. The noble old ship was fast settling. Already the water was up to our knees on the gun-deck, yet our broadsides kept thundering until the water poured in the port-holes. Amid the roar of the pivot-guns was heard the voice of Morris shouting to those on the gun-deck, "Up, my brave boys, and save yourselves the best you can. Every man for himself and God for us all!" Many of the wounded and the ship's chaplain were in the after-cockpit. They all perished with the ship. Many of the men came to the surface of the water and were shot. Others that could swim reached the shore in safety.

THE GREAT LOSS.

All of our boats except one were shot away, and that was a large boat, being the second launch. She was filled by those who were fortunate enough to reach her. Lieutenant Morris sprang overboard off the port quarter, was *rescued by* some of his own men, and was taken

ashore in the launch. The writer of this article had his arm broken, but managed to swim about a hundred yards and was picked up by those in the launch. The number of officers, seamen, and marines on board at the time of the engagement was 410, and after the engagement we mustered 173. As the old ship made her final plunge the after pivot gave the Merrimac a parting shot; then water closed over the ship and crew.

PHILADELPHIA, 1882.

Affidavits of E. V. White, C. J. Creekman, A. J. Dalton, C. B. Oliver, and Thomas Kerill.

I served on the Confederate steamer Merrimac, or Virginia, during her engagement with the United States fleet in Hampton Roads on March 8 and 9, 1862. I was on the forward gun-deck in charge of the gongs to the engine, and within arm's length of Commodore Buchanan. On reaching Hampton Roads, on the 8th, we made directly for the Cumberland. On nearing her, Lieutenant Davidson, in charge of the bow rifle, was ordered to fire. The shot struck, and with such effect as to cause the Cumberland to commence sinking. We reversed the engines, so as not to strike too heavily. The Cumberland was firing all the time. When her gun-deck was under water one of her shot struck our cable and wounded several men. Some men were killed by small-arms. The collision caused us the loss of our ram, and started a leak, but under control. Nothing could exceed the gallantry of the Cumberland—fighting as she sunk.

The Congress slipped her cable, and made for Old Point. She gave us a broadside, breaking off our forward port gun, and killing two men, wounding several. We had to go up the river to turn our long ship, then came down in pursuit of the Congress, and caused her to run aground at Newport News, and after a few shots to strike her flag; but in the act of receiving her surrender Lieutenant Minor was wounded and Commodore Buchanan was shot through the thigh when receiving his report, by sharpshooters on the beach.

That night we went over to Sewall's Point buoy. We sent our wounded and dead to the naval hospital; we had to keep our pump going all night on account of taking in water from the leak at the bow.

Next morning, March 9, on making for the Minnesota, we ran aground on a bar, I believe Hampton Bar; then the Monitor attacked us boldly, circling around and firing at our weakest point, the outboard delivery, finally bending the iron and forcing in the timber, but that was all the damage we sustained. Finally we commenced to move, and getting a fair chance ran into the Monitor, Lieutenant Davidson giving her a solid shot. With our ram I think we might have sunk her. Our injuries from the Cumberland had not been repaired then. After we came up to the yard we were stronger than ever; when we struck the Monitor as above stated she went off into shallow water, never to give us a chance at her again. This statement is from memory, but I believe it strictly true.

E. V. WHITE.

I was paymaster's steward on board the Merrimac, and am satisfied the above statement is true, except that I do not recollect about the leak that night.

C. J. CREEKMAN.

I served on the Merrimac at No. 3 gun. I am satisfied that the statement of Colonel White is correct. As to the 8th of March, I was wounded that day; but I believe the gun was broken by a shot from the Cumberland after our striking her. I looked out and saw the Cumberland, when Commodore Buchanan called, "Stand by to ram. After we struck our bow seemed to go down and then suddenly came up again. I remarked, "Our ram is broken." Several of us thought we would have gone down but for the break. With the breaking of the gun (the Merrimac and Cumberland nearly side by side, both firing, the Cumberland sinking), simultaneously, one man was killed, several wounded. I was wounded.

ANDREW J. DALTON.

I was gunner on the Merrimac. I am satisfied the statement of Colonel White is substantially correct. The striking and firing our bow gun were about the same time.

C. B. OLIVER.

I had one of the after-guns on the Merrimac in her fight with the Cumberland, a 9-inch Dahlgren gun. The muzzle of the gun was knocked off by a shell, but the gun was not disabled. Dalton was one of my men, but he was forward and wounded then. I am not certain whether the gun was broken the first or second day.

THOMAS KERILL.

The foregoing statements of E. V. White, C. J. Creekman, A. J. Dalton, C. B. Oliver, and Thomas Kerill were subscribed and sworn to before me, at Norfolk, Va., this 13th day of December, A. D. 1882.

A. MEADE SMITH,
Notary Public.

Message of President Lincoln recommending a vote of thanks to Lieut. Commander George U. Morris for valor and heroism, &c.

To the Senate and House of Representatives:

In conformity to the law of July 16, 1862, I most cordially recommend that Lieut. Commander George U. Morris, United States Navy, receive a vote of thanks from Congress for the *determined valor and heroism* displayed in his defense of the United States sloop of war Cumberland, temporarily under his command, in the naval engagement at Hampton Roads, on the 8th of March, 1862, with the rebel iron-clad steam frigate Merrimac.

ABRAHAM LINCOLN.

WASHINGTON, D. C.,
December 10, 1862.

OINT RESOLUTION tendering the thanks of Congress to Lieut. Commander George U. Morris of the United States Navy.

Resolved by the Senate and House of Representatives in Congress assembled, That in pursuance of the recommendation of the President of the United States, and to enable him to advance Lieut. Commander George U. Morris one grade, in pursuance of the ninth section of the act of Congress of 16th July, 1862, the thanks of Congress, be and they are

hereby, tendered to Lieut. Commander George U. Morris, for highly distinguished conduct in defense of the United States sloop of war Cumberland, at Hampton Roads, on the 8th of March, 1862, from the attack of the rebel iron-clad steam frigate Merrimac.

Passed the House of Representatives December 19, 1862.

Attest.

EM. ETHEREDGE, *Clerk.*

Introduced in the Senate December 22, 1862, and referred to Committee on Naval Affairs.

O

TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 59.

IN THE SENATE OF THE UNITED STATES.

BRUARY 26, 1884.—Referred to the Committee on Foreign Relations and ordered to be printed.

Mr. MORGAN submitted the following

RESOLUTION:

Whereas the President of the United States, in his message to Congress, says that—

The rich and populous valley of the Congo is being opened to commerce by a society alled the International African Association, of which the King of the Belgians is the resident and a citizen of the United States the chief executive officer. Large tracts of erritory have been ceded to the association by native chiefs, roads have been opened, teamboats placed on the river, and the nuclei of states established at twenty-two stations under one flag which offers freedom to commerce and prohibits the slave trade. The objects of the society are philanthropic. It does not aim at permanent political ontrol, but seeks the neutrality of the valley. The United States cannot be indifferent to this work nor to the interests of their citizens involved in it. It may become dvisable for us to co-operate with other commercial powers in promoting the rights trade and residence in the Congo Valley free from the interference or political control of any one nation:

Be it resolved by the Senate of the United States, That prompt action recommended to the President towards securing unrestricted freedom access and traffic to our citizens in their legitimate enterprises in ie Congo Basin, from its mouth to its sources:

1. By taking such measures as may be necessary to assure protection our citizens and their trade, in the territories called the Free States the Congo, acquired from native chiefs by the Committee of the Upper ongo, and under the flag of the African International Association, freeom from customs dues, the right to trade, to reside and acquire propty, whether as traders or missionaries, freedom of religious belief, and eedom from the slave trade.

2. By reasserting and applying the policy of previous Administrations, denying rights of sovereignty and of intervention by any power, reat or small, to the mouth of the Congo, the gate-way of Central frica; and by taking such steps, in concert with other commercial owers, as shall assure freedom of passage, by land and water, through hat region, unrestrained by any impositions, to all peoples, in their egitimate pursuits; and which shall prevent the further deportation herefrom of Africans for forced labor in any form.

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 60.

IN THE SENATE OF THE UNITED STATES.

FEBRUARY 26, 1884.—Referred to the Committee on Rules and ordered to be printed.

Mr. HARRIS submitted the following

RESOLUTION:

Resolved, That the eighth rule of the Senate be amended by adding thereto the following words: "All motions made before 2 o'clock to proceed to the consideration of any matter shall be determined without debate."

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 61.

IN THE SENATE OF THE UNITED STATES.

FEBRUARY 26, 1884.—Referred to the Committee on Rules and ordered to be printed.

Mr. HARRIS submitted the following

RESOLUTION:

Resolved, That the seventh rule of the Senate be amended by adding thereto the following words: "The presiding officer may at any time lay, and it shall be in order at any time for a Senator to move to lay, before the Senate any bill or other matter sent to the Senate by the President or the House of Representatives, and any question pending at that time shall be suspended for this purpose. Any motion so made shall be determined without debate."

○

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 62.

PROTEST

OF

D. W. BUSHYHEAD, PRINCIPAL CHIEF, AND OTHER CHEROKEE AND CREEK INDIANS,

AGAINST

The passage of Senate bill No. 50 and House bill No. 3961.

MARCH 7, 1884.—Ordered to lie on the table and be printed.

WASHINGTON, D. C., *February* 28, 1884.

SIR: We inclose you our protest against the passage of the bill for another railroad through the Indian Territory. The paper contains our objections, and may not have been called to your attention.

It would revolutionize the Government policy in the Indian Territory, and we believe the bill was not sent to the Secretary of the Interior for his views on it.

Pardon us for calling this matter to your attention; and begging from you a careful consideration of such a measure,

We are, very respectfully,

D. W. BUSHYHEAD,
Principal Chief.

L. B. BELL,
JOHN G. SCHRIMSHER,
Cherokee Delegation.

Hon. OMAR D. CONGER,
United States Senate.

WASHINGTON, D. C., *February* 8, 1884.

To the Congress of the United States:

GENTLEMEN: There are several measures pending before you to charter railroad companies and grant them certain valuable privileges and properties in our country. Two of these have been reported to you, and by the committees having them in charge recommended to you for enactment. Those are Senate bill No. 50 and House bill No. 3961. Both of these violate treaty obligations solemnly entered into with us by the United States. Both of these propose to take our property without consulting us. Both of these, while thus violently taking our property, offer a compensation wholly inadequate, and both are

confronted with propositions dangerous in their character, and entirely subversive of all law, order, or peace in the Indian Territory. These bills were prepared before we could have an opportunity to be heard on them, or any of the questions involved; and we think we have but to call your attention to the new and dangerous propositions in order to find in the Senate and House of Representatives that spirit of fairness and justice that usually mark the American character.

We are aware that we may subject ourselves to the criticism that this, our protest, is an oft repeated one; our only apology being that this is an oft-repeated attempt to invade and deprive us of our rights. It is no less our duty than our privilege thus to appeal to you, and to ask you not to lend your sanction to such a wrong. These bills show:

(1.) In the second section the corporation practically receives by its terms a strip of land five hundred feet wide, at and for some distance from stations, and an additional two hundred feet elsewhere for cuts and fills. This is taken out of the domain our people can use or occupy. Will any one pretend that the fifty dollars per mile is a fair remuneration for such a property or such a franchise? No parallel case was presented in the railroad chartered through the Choctaw Nation last year. The treaty with the Choctaws permitted such Congressional legislation, while ours does not; but even in that case the company were required to pay the Choctaw Nation more in each year for the franchise granted than these bills propose to pay us altogether. We protest against such confiscation of our property. We have not been consulted as to what it is worth. You surely would not take our property for the use of the Government for less than its value, and why should you give it to a private corporation for less?

(2.) Section seven of each bill authorizes the employés of each company to *settle* on the right of way. This is a departure from all that is known in any State or grants of right of way. It grants our property for individual benefit. It would, if enacted, create a village, town, or string of settlements along the railroad, creating individual rights and interest, and saddling them and their improvements on our realty. It would create a community under no government or law. It would introduce all manners of traffic, with liquor and other abuses, into the Indian country. It would render it totally impossible to preserve law and order therein.

It is a scheme expressly devised to break up and destroy the country of the five nations. It is a scheme full of mischief and confusion to us and you, and would, if consummated, destroy the government policy in the Indian Territory. We granted right of way to two railroads that have been built; but in both cases the employés are restricted to an occupancy necessary to run this road, and the company is under bond for their good behavior while in and their removal when discharged. It works no hardship to them. It would cripple and destroy the action of our government, thus greatly violating our treaties. It would strip us of considerable revenue we now enjoy. It would introduce into our country all the riff-raff that for years have been seeking to invade it in violation of law and treaty.

(3.) The manner of assessing damages for property and improvements condemned on the right of way, is not fair. We are only allowed one of the three commissioners, two of whom may assess the damages. The mode of appeal to a far distant court in an adjacent State is too expensive and cumbrous to be a remedy in cases of injustice; its expense debars our people from using it. The road now in the Indian country, under the act of Congress and by voluntary agreement, formally ar-

tered into with their officers, by the Cherokee Nation, before the Department, permits all these cases, and all cases of damages to be settled in the Cherokee courts. This has been proved to be so far satisfactory. It has worked no hardship at least to the company. The company has never complained of it, but prefer such adjudication to the expensive adjudication of a remote court. Why ignore the jurisdiction of the local tribunals.

It seems to have been the purpose of these bills to trample down every right of our people, as well as our treaties.

(4.) Section 5 places the power of taxing entirely in the hands of Congress, a power, the exercise of which, under your Constitution, is somewhat questionable. You have guaranteed us the right of government in our own country. Why thus gratuitously invade it? While every State surrounding us has inaugurated what is termed hostile legislation towards railroads, the Cherokee government never has. Why not take the power from the States of Kansas and Texas, if you wish to protect railroad corporations from it.

(5.) Section 8 only repeats and intensifies the wrong of section 3, and leaves us no remedy save in the court of an adjacent State.

For these and many other reasons, we are forced, in defense of the just rights of our people, to protest against the passage of these measures. We do not appear as the enemy of any railroad that is needed for the business of the country. We have already by our voluntary act granted the right of way to two roads that have been in operation for more than ten years. The companies asking the franchises under these bills have never attempted to make a fair arrangement for the privileges they ask from our authorities.

We earnestly protest against any disposition of our property without consulting us. To refuse us the initial step in disposing of our own property is surely unfair. We think we need not assure you we have rights that ought to be respected. Congress certainly would not assume the power to tax our country and sell it for taxes. The Supreme Court of the United States, in 18 Howard, page 100, defines our government under the 5th article of the treaty of 1835, which is as follows:

"The United States hereby covenant and agree that the lands ceded to the Cherokee Nation in the foregoing article shall in no future time, without their consent, be included within the territorial limits or jurisdiction of any State or Territory; but they shall secure to the Cherokee Nation the right, by their national councils, to make and carry into effect all such laws as they may deem necessary for the government and protection of the persons and property within their own country, belonging to their people, or such persons as have connected themselves with them: *Provided, always*, That they shall not be inconsistent with the Constitution of the United States, and such acts of Congress as have been or may be passed regulating trade and intercourse with the Indians; and, also, that they shall not be considered as extending to such citizens and Army of the United States as may travel or reside in the Indian country, by permission, according to the laws and regulations established by the government of the same." (7 U. S. Stats., 481.)

In its decision the court says, that the measure of the power of our government is only limited by the express terms of treaty limitation. Nor can an excuse be found in the power to frame laws regulating trade; these certainly do not and could not authorize an act confiscating our property. In the Territories Congress merely grants a right of way through the public lands; but here they claim the right, if this bill is passed, to make another *disposition* of property they conveyed to us

and placed under our jurisdiction. This proposed law further overrides our laws regulating the mode of obtaining ties and other material. These measures are full of wrongs to us, and of danger both to us and the country, and we beg of you to carefully consider them, and not to permit a violation of the treaty pledges made to us by the United States.

We are, very respectfully,

D. W. BUSHYHEAD,
Principal Chief.
J. G. SCHRIMSHER,
L. B. BELL,
Cherokee Delegation.

IS-PA-HE-CHE,
SAM'L CHECOTE,
D. M. HODGE,
G. W. GRAYSON,
Creek Delegates.

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48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 63.

IN THE SENATE OF THE UNITED STATES.

MARCH 10, 1884.—Ordered to lie on the table and be printed.

Mr. BAYARD submitted the following

RESOLUTION:

Whereas by the ninth article in amendment of the Constitution it is provided that the enumeration in the Constitution of certain rights shall not be construed to deny or disparage others retained by the people; and by the tenth article in amendment of the Constitution it is provided that the powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States, respectively, or to the people: Therefore

Resolved, That the Committee on the Judiciary be, and they are hereby, instructed to report as soon as practicable as to the expediency of amending the Constitution so as more fully to accomplish the object and purpose of the foregoing provisions, secure to the States, respectively, or to the people the powers reserved as aforesaid, and more effectually to preserve the Federal principle and nature of the Government by maintaining due limitations upon its powers, and to that end provide that Congress shall not have power to make anything but gold and silver coin a tender for the payment of debts, nor pass any law impairing the obligation of contracts.

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 64.

IN THE SENATE OF THE UNITED STATES.

MARCH 10, 1884.—Ordered to be printed, and referred to the Committee to Audit and Control the Contingent Expenses of the Senate.

Mr. VOORHEES submitted the following

RESOLUTION:

Resolved, That the Secretary of the Senate be, and he is hereby, authorize and directed to pay out of the contingent fund of the Senate the sum of $1,696 to James W. Tebbs, as the residue of his salary as messenger from May 5, 1879, to November 30, 1883.

JAMES W. TEBBS.

	Earned as messenger at $1,440 per annum.		Received as laborer at $720 per annum.	
May 5 to 31, 1879	$103 85		$53 41	
June, 1879	115 40		59 34	
July, 1879	117 90		60 65	
August, 1879	117 90		60 65	
September, 1879	114 20		58 70	
October 1 to 15, 1879	57 07		29 35	
		$626 32		$322 10
October 16 to 31, 1879	60 83		.....	
November, 1879	114 20		.....	
		$175 03		
December, 1879	117 90		60 65	
January, 1880	119 20		61 30	
February, 1880	111 60		57 40	
March, 1880	119 20		61 30	
April, 1880	115 40		59 34	
May, 1880	119 20		61 32	
June, 1880	115 40		59 34	
		817 90		420 65
ON P. O. ROLL AT $1,200 PER ANNUM.				
July 1, 1880, to July 1, 1881	1,440 00		1,200 00	
July 1, 1881, to July 1, 1882	1,440 00		1,200 00	
July 1, 1882, to July 1, 1883	1,440 00		1,200 00	
		4,320 00		3,600 00
July, 1883	121 30		101 09	
August, 1883	121 30		101 09	
September, 1883	117 39		97 83	
October, 1883	121 30		101 09	
November, 1883	117 39		97 83	
		598 68		498 93
		6,537 93		4,841 68
		4,841 68		
Residue yet unpaid	.....	1,696 25		

O

48TH CONGRESS, 1st Session. } SENATE. { MIS. DOC., No. 65.

IN THE SENATE OF THE UNITED STATES.

MARCH 17, 1884.—Ordered to be printed.

Mr. HARRIS, from the Committee on Rules, submitted the following

RESOLUTION:

Resolved, That the Tenth Rule of the Senate be amended by adding thereto the following words:

"And all motions to change such order shall be decided without debate."

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 66.

LETTER

FROM

THE SECRETARY OF WAR

TO

The chairman of the Committee on Military Affairs, in relation to the bill (S. 1420) to increase the efficiency of the Army of the United States.

MARCH 18, 1884.—Ordered to be printed, to accompany bill S. 1420.

WAR DEPARTMENT,
Washington City, March 7, 1884.

SIR: I have the honor to acknowledge the receipt of your letter of the 29th ultimo, inclosing a bill (S. 1420) to increase the efficiency of the Army of the United States, and requesting that an examination thereof be made and statement prepared showing wherein its prescribed rates of pay differ from those established by existing law, and suggestions offered as to the effect of the provisions of the bill, &c., and in reply thereto have to state as follows:

A statement prepared by the Paymaster-General, herewith transmitted, shows in detail the rates of pay as contained in the present pay-tables, together with those provided by the proposed bill. It will be perceived that the bill provides for a reduction of the amount now fixed as the pay of commissary sergeants to the extent of $11 per month, while for all other enlisted men the present rates are either retained or increased. It is presumed that this is an error of inadvertence, as it is not believed the present rate is in any degree too high. Upon the general provisions of the bill it is remarked that their adoption as a whole would, in my judgment, be promotive of the best interests of the service. They embrace, in the main, recommendations heretofore submitted by myself after careful consideration of the needs of the Army, as presented to me by officers conversant therewith. These may be summarized in their relation to each section of the bill as follows:

As to the first section, creating summary courts, it vitalizes views which have long been held by officers who have given the subject special study. Under existing legislation soldiers who are charged with the commission of minor offenses are necessarily detained in the guard-house awaiting the appointment of a court, for which a sufficient number of officers may not be on duty at the post where he is held in custody; while he is a prisoner worthier men are performing his duties in addition to their own.

The establishment of the permanent enlisted strength of the Army at not to exceed thirty thousand men, as provided for in the second section of the bill, is a measure heretofore strongly urged by the Gen-

eral of the Army and myself. As was stated in my annual report for 1882:

No increase in the number of officers would be caused, and we would have at each of our numerous posts a force not only larger but more efficient. Our soldiers are overworked, and the companies are too small for discipline or real economy.

Touching the increase of pay of certain enlisted men, it has been heretofore recommended by the General of the Army as a partial remedy for the serious trouble resulting from the number of desertions from the Army. When the actual cost of supplying a deserter's place is considered, such an increase would not cause an equivalent increase in aggregate public expenditures.

The authority provided in section 4 for the employment of a private soldier as a servant by any officer stationed apart from settlements has repeatedly been recommended by this Department. In reference to this subject the views set forth in my annual report for 1882 are again expressed, as follows:

In many remote places no servants can possibly be obtained, and officers must not only cook their own meals but groom their horses or violate the law as it now stands. It would seem clear that no officer can habitually do such work and properly supervise his company and command; and it is recommended that the law be modified so that, with the consent of the soldier and the approval of the department commander, an officer may be allowed the services of an enlisted man of his command, the pay proper of the soldier being withheld by the Government and paid by the officer benefited.

The provision of section 5, that officers serving away from their stations as members or judge-advocates of courts-martial or courts of inquiry, or as members of military boards, shall receive a per diem allowance of $2.50, is in my judgment a simple matter of justice. From March 16, 1802, until the passage of the act of July 15, 1870, a per diem allowance of this character was authorized to be paid. The act last mentioned established the present pay system of the Army, and provided that the rates therein specified should—

Be in full of all commutation of quarters, fuel, forage, servants' wages and clothing, longevity rations, and all allowances of every name and nature whatever.

The same act specifically provided for continuing the payment of—

Expenses of courts-martial, military commissions, and courts of inquiry, *including the additional compensation of judge-advocates, recorders, members, and witnesses, while on that service, under the act of March* 16, 1802.

Notwithstanding this, however, it was held by the accounting officers of the Treasury Department that the provision that the prescribed rates of pay should be in full, &c., prohibited the further payment of the per diem allowance. As has been heretofore represented by me, in a communication addressed to the Senate Military Committee, it is believed that the two provisions were not so conflicting but that in considering them together it would have been good construction to have given force to each. The per diem of officers to meet extra expenses imposed on them by orders is rather in the nature of a reimbursement than of an allowance in the sense the latter term is used when embracing compensation or emoluments.

The present pay system was adopted with a view to equalize the pay of officers, but in the construction which has been placed upon it it fails of its purpose. When officers are ordered from their stations on court-martial service, in addition to the continuing expense of their household is added the cost of their personal maintenance, in many instances imposing a very great hardship, as such duties, though temporary in their nature, sometimes occupy weeks and even months.

The employment of civilian clerks at military headquarters in place of the general-service men authorized would, it is believed, prove beneficial. The change of the same character made in this Department has operated successfully as properly classifying all persons engaged in purely clerical duty.

The provision of section 7 that the officer detailed to duty as governor of the Military Prison at Fort Leavenworth, Kans., shall have the local rank of colonel, with the pay and allowances of that grade while on said duty, is earnestly commended. This has been repeatedly recommended and urged by the commissioners of the prison, who are familiar with the great value of the services performed by the officer in charge of the prison; and from a personal inspection of the prison and its administration, I have been led to concur with them, and beg to submit the following extract from a previous report made by me referring to this officer:

> Considering that his position demands the possession by the incumbent of administrative ability of the highest degree, combined with the rare mechanical powers required for the successful management of an institution embracing many and varied branches of industry, I most earnestly recommend that the local rank of colonel, with the pay and allowances of that grade, be attached to the office of governor of the prison. This officer has a greater amount of labor and responsibility than any regimental commander. He governs and controls between 500 and 600 persons. Practically he is at one and the same time superintendent of a large manufacturing establishment embracing diversified branches of industry, and the military director of all affairs within the prison.

It is to be remarked that the title of governor has been changed to that of "commandant," as in harmony with the law and present regulations, and that the bill should at line 1, section 7, be amended accordingly.

The provisions of section 8 are believed to be just. No reason is known to exist why an acting assistant quartermaster, upon whom pecuniary responsibility and great labor is imposed, should not be on an equal footing with an acting commissary. There are no "assistant" commissaries in the Army, as referred to in this section, and the surplus word should be eliminated.

The ninth section meets in its provisions repeatedly-urged petitions from officers of the Army, and recommendations of the Quartermaster-General concurred in by my predecessors and myself. Great inconvenience and sometimes hardship results from the operation of the present law, which compels officers to purchase fuel for their own use.

The legislation proposed by section 10 is demanded to include within the beneficial intent of the present law many persons excluded therefrom, although those persons are pensioned on account of hernia.

The Paymaster-General has heretofore twice recommended, with my concurrence, the relief sought to be extended by section 11. Mileage is given an officer to pay all his expenses while traveling under orders, of which fares on railroads are but a minor part.

The twelfth section provides a remedy for what has long been a source of great embarrassment to this Department. In my annual report for 1882, it was stated as follows:

> During the past few years the military forces have been called upon many times to expel one Payne and his followers from the Indian Territory. Twice during the present year has his settlement been broken up, and the Department is liable at any time to be called upon to set on foot another expensive military expedition against him and his party. The only penalty for his offense is the fine which may be imposed under section 2148 of the Revised Statutes. As I stated in my last report he cares nothing for its imposition, as it cannot be collected. It is very important that an amendment, providing for imprisonment, should be made. Such an amendment would prevent his vexatious raids, and save a large amount of money now expended in removing him *several times a year.*

This provision of section 24 entirely the recommendations hereinafter urgently submitted as a pressing necessity for giving effect to a successful educational system in the Army. A similar measure was favorably suggested by the Secretary of War of the Forty-seventh Congress.

I am, very respectfully, your obedient servant,

ROBERT T. LINCOLN,
Secretary of War.

Hon. JAMES A. JAMES,
Chairman of the Committee on Military Affairs,
United States Senate.

O

CONGRESS, } SENATE. { MIS. DOC.
t Session. } { No. 67.

IN THE SENATE OF THE UNITED STATES.

MARCH 24, 1884.—Ordered to be printed.

Mr. VAN WYCK submitted the following

RESOLUTION:

hereas, on the 24th day of January, 1884, the Senate adopted the wing:

olved, That the Attorney-General be directed to inform the Senate when and by the compensation for special attorneys in the star-route cases in the District of bia was fixed, and to furnish copies of any agreements or memoranda relating o, and if in his judgment the compensation is unreasonable, why he ratified and ued the same. Also, whether said attorneys or any of them are now in the y of the Department of Justice, and at what compensation.

hereas no reply has been made thereto: Therefore,
solved, That the Attorney-General be directed to furnish the information demanded, or give his reasons for neglecting or refusing so).

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 68.

IN THE SENATE OF THE UNITED STATES.

MARCH 27, 1884.—Ordered to lie on the table and be printed.

Mr. PLUMB submitted the following

RESOLUTION:

Resolved, That the Secretary of the Treasury be directed to advise the Senate what amount of the war tax of 1861 is due and unpaid; from what States, or from the citizens of what States, due; whether any portion of said tax, and if so, what portion, has been paid by withholding moneys due to any State or States from the General Government; and whether the rule adopted in withholding such moneys has been applied alike to all the States.

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 69.

LETTER

OF

HON. T. F. SINGISER,

AND ACCOMPANYING PAPERS,

RELATING TO

The bill (S. 1021) to authorize the reapportionment of the Territory of Idaho into council and representative districts.

MARCH 28, 1884.—Ordered to be printed.

Mr. PLATT, from the Committee on Territories, furnished the following papers, which were ordered to be printed to accompany bill S. 1021:

HOUSE OF REPRESENTATIVES,
Washington, D. C., March 17, 1884.

SIR: There is now in your hands, Senate bill No. 1021, to "authorize the reapportionment of the Territory of Idaho into council and representative districts," as a subcommittee of the Committee on Territories.

I submit herewith a substitute for this bill, providing that a census of the Territory shall be taken and the apportionment based thereon. I believe the basis of a census much fairer than that of the vote cast at the last general election, as provided in the original bill. In connection with this bill I submit herewith a statement of the reasons for this reapportionment, together with certain official papers bearing thereon.

(1.) The Territory contains fourteen organized counties. These counties have a representation in the Territorial legislature of twelve members of the council, and twenty-four members of the assembly, divided as follows:

County.	Representation in council.	Representatives in house.	Vote.
Ada	1½	4	1,249
Alturas	½	1	2,942
Bear Lake	1	2	404
Boise	1½	2	716
Cassia	½	1	516
Custer	½	1	568
Idaho	1	2	479
Kootenai	½	½	244
Lemhi	½	1	474
Nez Perce	1	3	1,101
Oneida	2	4	1,345
Owyhee	½	1	470
Shoshone	½	½	30
Washington	½	1	421
Total	12	24	10,959

The foregoing statement presents the singular fact that the county [illegible] will be seen [illegible] of the Territory, the largest tax-payer, and [illegible] property [illegible] assessed valuation is much greater than that of any [illegible] has the smallest representation in the legislature. The governor of the Territory in his last biennial message to the legislature [illegible] attention to the inequality of representation from the several counties and recommended a reapportionment. The legislature failed [illegible] and Congress is now asked to correct the failure of the Territorial legislative assembly.

In this connection I desire to call your attention to the fact that out of a total membership of thirty-six in the last legislature, ten were Mormons. Thus it will be seen that almost a third of the representation is [illegible] the full control of the Mormon Church. This element always [illegible] any section in which they may be [illegible] political affiliation [illegible] they may make for the time being [illegible] advantage [illegible] have a large representation in the legislature [illegible] legislation [illegible] of the Mormon [illegible]

The increase of the Mormon power in Idaho during the past ten years has been very great. From one member of the legislature ten years ago, they have increased until they now have ten. It is to their interest to prevent a reapportionment of the Territory, for the reason that it will reduce their representation. I may cite one instance to prove this fact, viz: The counties of Bear Lake, Cassia, and Oneida (the three Mormon counties), have an "assessed valuation" of $3,058,327 and a representation of four members of the council, and seven members of the house, while Alturas County, with an assessed valuation of $[illegible], has a representation of one-half member of the council and one member of the house.

The county (Alturas) which the proposed reapportionment of the Territory will benefit contains one-sixth of the population of the entire Territory. It contains a vast area of agricultural and grazing lands, and its mines are among the best and most productive in the United States. Vast amounts of capital have been invested in mining industry in this county. Numerous smelting works and quartz mills have been erected, employing a large number of laborers. It contains about 400 miles of railroad and telegraph lines. The volume of business transacted in this county is as great as that of any three other counties in the Territory.

An apportionment bill similar in character to the one proposed was passed in the Forty-sixth Congress, applicable to the Territories of Idaho, Montana, New Mexico, and Wyoming. Also, one applying to Montana in the Forty-seventh Congress.

Our population has more than doubled since the census of 1880, and is rapidly increasing. The centers of population have shifted, and counties which at that time had comparatively few inhabitants have now grown to be the most populous.

I have submitted the original bill and the proposed substitute to the press of the Territory, and with a single exception all the newspapers have indorsed it as fair and just, and favor its passage. Prominent people throughout the Territory, of all shades of political opinion, have written to me urging its passage as a necessity in curtailing the rapidly

ing power of the Mormon Church, which institution now has a much
r representation in the legislature than it is fairly and honestly en-
to.
ıgress is the only power which can give relief in the premises, for
ason that the same representation which failed to apportion at the
ession would control in the next session.
tention is invited to the tables and schedules herewith.
anking you for your courteous treatment in this matter, I am, sir,
Very respectfully,

T. F. SINGISER,
Delegate from Idaho.

n. O. H. PLATT,
United States Senate.

Synopsis of assessment rolls of Idaho Territory.

County.	Assessed valuation.	Number of taxable inhabitants.
.....	$1, 986, 914 00	932
.....	2, 871, 365 57	2, 655
ake	440, 619 00	579
.....	748, 997 85	442
.....	516, 636 00	424
.....	595, 772 00	719
.....	618, 928 00	428
ai	444, 348 88	128
.....	508, 762 00	312
rcé	1, 817, 229 00	1, 632
.....	2, 101, 072 00	1, 412
.....	822, 091 50	306
ne	36, 884 00	163
ıgton	428, , 792 51	401
otal	13, 938, 412 31	10, 533

CE OF TERRITORIAL CONTROLLER,
Territory of Idaho, ss:

ames L. Onderdonk, Territorial controller of Idaho Territory, here-
ırtify that the foregoing is a true and correct synopsis of the com-
d assessment rolls of the respective counties of this Territory, as
ars by the official returns to this office for the fiscal year ending on
econd Monday in January, 1884.
witness whereof I have hereunto set my hand and official seal, at
s City, in said Territory, this 1st day of March, 1884.
EAL.] JAS. L. ONDERDONK,
Territorial Controller.

Statement showing gross receipts of Territorial proportion of revenue of Idaho Territory for the fiscal year ending on the second Monday in January, 1884.

Counties.	Property tax.	Licenses.	Poll-taxes.	Total.
Ada	$4,918 80	$1,237 80	$1,256 00	$7,412 60
Alturas	7,197 85	3,754 00	2,042 00	12,993 85
Bear Lake	1,125 27	231 80	788 00	2,145 07
Boisé	1,886 16	1,018 20	1,942 00	4,846 36
Cassia	1,343 93	346 20	490 00	2,180 13
Custer	1,483 60	1,127 20	918 00	3,528 80
Idaho	1,325 07	205 20	1,140 00	2,670 27
Kootenai	744 27	464 40	572 00	1,780 67
Lemhi	1 732, 13	473 20	842 00	3,047 33
Nez Percé	4,380, 29	1 271 00	1,562 00	7,212 29
Oneida	3,393 43	536 80	1,095 00	5,025 23
Owyhee	2,152 68	514 20	620 00	3,286 88
Shoshone	92 30	66 00	258 00	416 30
Washington	994 23	486 00	470 00	1,950 23
Total	32,778 51	11,722 00	13,885 00	58,435 51

OFFICE OF TERRITORIAL CONTROLLER,
Territory of Idaho, ss:

I, James L. Onderdonk, Territorial controller of the Territory of Idaho, hereby certify that the foregoing is a true and correct statement of the gross receipts of the Territorial portions of the revenue from the respective counties of this Territory, as appears from the official reports to this office for the fiscal year ending on the second Monday in January, 1884.

In witness whereof I have hereunto set my hand and official seal, at Boisé City, in said Territory, this second day of March, 1884.

[SEAL.] JAS. L. ONDERDONK,
Territorial Controller.

C

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 70.

IN THE SENATE OF THE UNITED STATES.

APRIL 2, 1884.—Referred to the Committee on Foreign Relations and ordered to be printed.

Mr. CALL submitted the following

RESOLUTION:

Resolved, That the President of the United States be, and he is hereby, requested to institute negotiations with the Government of the King of Spain for a reference to an umpire for decision of the question whether the treaty of 1819 has been fully carried into effect by the United States, and whether the Government of the United States is bound in good faith to pay the full amounts awarded by the judicial tribunals to whom the same was referred for the payment of the losses sustained from the forces acting under the orders of the United States in 1818–'19, including interest and damages thereon. Also all other questions arising under said treaty in which it is claimed by the Government of Spain that the United States of America have failed to perform and carry out the same, and to settle and finally decide what amounts, if any, remain to be paid by the United States.

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 71.

LETTER

OF

SERGEANT-AT-ARMS CANADAY,

INCLOSING

Report of the superintendent of the Senate document room in relation to the appointment and employment of Wilbur F. McDaniel.

APRIL 7, 1884.—Referred to the Committee on Rules and ordered to be printed.

SERGEANT-AT-ARMS, UNITED STATES SENATE,
Washington, April 7, 1884.

SIR: I most respectfully call your attention to the inclosed report from the superintendent of the document room. It will be seen that the young man is incapacitated for the duties required of him. Having been appointed by a resolution of the Senate I request the further pleasure of your honorable body concerning the same.

Very respectfully, your obedient servant,

W. P. CANADAY,
Sergeant-at-Arms, United States Senate.

HON. GEORGE F. EDMUNDS,
President of the Senate.

SENATE DOCUMENT ROOM,
April 7, 1884.

SIR: In compliance with your verbal request for a statement in relation to the appointment and employment of Wilbur F. McDaniel as page in this room, I have the honor to state that he was appointed by a resolution, which passed the Senate on May 20, 1879, as follows:

"*Resolved*, That Wilbur F. McDaniel be, and he is hereby, appointed messenger to the superintendent of the document room, at a salary not exceeding $720 a year." (Senate Journal, first session Forty-sixth Congress, page 154).

Under this resolution he was employed in this room from the date of its passage until August 8, 1882, when, owing to some difficulty with the then Sergeant-at-Arms, which occurred at the front door of the Senate Chamber, the exact nature of which I never learned, he was suspended by your predecessor, and has performed no duty in this room since. He has, however, I believe, drawn the salary regularly to the present time.

As to his fitness for the place, it is due to him to state that while employed here he was always willing to do what he could, and performed the duties to the best of his ability, but owing, no doubt, to the injuries received from his unfortunate fall over the railing of the east stairway, while a page of the Senate, he was, and is, in my judgment incapacitated from performing intelligent service, such as should be employed among the files of this room.

The lack of a messenger or page causes great inconvenience, and imposes upon us many duties that could be performed by a messenger.

Hoping this covers the scope of your inquiry, I am, sir,

Very respectfully, yours,

AMZI SMITH,
Superintendent.

HON. WILLIAM P. CANADAY,
Sergeant-at-Arms, United States Senate.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 72.

IN THE SENATE OF THE UNITED STATES.

APRIL 8, 1884.—Ordered to be printed.

Mr. PLUMB submitted the following

RESOLUTION:

Resolved, That Rule Thirty-three be amended by adding after the words "The heads of Departments," in the seventh line of the rule as printed for the use of the Senate, the following: "Including the Commissioner of Agriculture."

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 73.

LETTER

FROM

THE SECRETARY OF STATE,

AND OTHER PAPERS

Relating to certain medals which were destroyed by fire in the Library of Congress a few years ago.

APRIL 8, 1884.—Referred to the Committee on Appropriations and ordered to be printed, to accompany amendment reported to sundry civil bill.

DEPARTMENT OF STATE,
Washington, March 31, 1884.

SIR: With reference to your letter of the 20th ultimo, requesting this Department to ascertain the cost of obtaining duplicates of certain medals which were destroyed by fire in the Library of Congress some years ago, I now have the honor to inform you that I have just received a despatch from Mr. Morton, our minister at Paris, in which he states that the French mint will furnish duplicates for the sum of 322.25 francs.

I have the honor to be, sir, your obedient servant,

FRED'K T. FRELINGHUYSEN.

Hon. JUSTIN S. MORRILL, *Senate.*

No. 532.

SEVENTEENTH CONGRESS, SECOND SESSION.

MEDALS.

Communicated to the House of Representatives, December 19, 1822.

Mr. ALEXANDER SMYTH, from the Joint Library Committee, to whom was referred the letter of George W. Erving, esq., accompanying a collection of medals, reported:

That they have had the same under consideration and recommend the adoption of the following resolution:

Resolved, That the Speaker be directed to express to George W. Erving, esq., the thanks of this House for the liberal donations of French and American medals made by him to Congress, for the use of the National Library.

BOSTON, *July* 4, 1822.

SIR: The letter which I had the honor to address to you on the 4th July, 1819, and which Mr. Lowndes was so obliging as to take charge of and deliver, was intended to have been accompanied by the collection of medals therein referred to, but this was

unfortunately lost on board the ship "Factor," bound to New York; of which accident it appears that the House was duly informed by its committee. As soon as I heard of it, I endeavored to procure a duplicate of the collection, and succeeded a few days before I left Paris, in April last. This, together with the medals which have been struck at Paris to commemorate some principal events of, and men distinguished in, our Revolution, I take the liberty, through you, sir, of herewith sending and offering to Congress for the use of the National Library.

With sentiments of the highest respect, sir, your most obedient servant,

GEORGE W. ERVING.

To the Hon. THE SPEAKER OF THE HOUSE OF REPRESENTATIVES.

P. S.—A printed catalogue of the French medals is inclosed in the case which contains them. The American medals are but five, proper, viz: One of General Washington at the siege of Boston; one of Dr. Franklin; one of Paul Jones; two of the battle of the Cowpens. To these I have thought it well to add Columbus and Kosciusko, taken from the collection of illustrious men, deceased, now publishing in the French mint.

G. W. E.

Monnaie des médailles. Collection des médailles en bronze, des campagnes et du règne de l'Empereur Napoléon.

DÉSIGNATION DES MÉDAILLES.

1796. Bataille de Montenotte.*
Bataille de Millésimo.
Bataille de Castiglione.
1797. Reddition de Mantoue.
Capitulation de Mantoue.*
Passage du Tagliamento.
Traité de Campo-Formio.
1798. Conquête de la Basse-Égypte.*
Conquête de la Haute-Égypte.*
L'Égypte Conquise.*
1799. Retour à Fréjus.*
1800. Passage du Grand Saint-Bernard.*
Bataille de Marengo.
Mort du Général Desaix.
Colonne départementale.
Colonne nationale.
Le Quai Desaix.
Honneurs rendus à Turenne.
Attentat du trois Nivôse.
1801. Paix de Lunéville.
Autre, sur le même sujet.
1802. Paix d'Amiens.
Autre, sur le même sujet.
Rétablissement du Culte.
Organisation de l'Instruction publique.*
1803. Négociations avec l'Angleterre.*
Conquête du Hanovre.*
La Vénus de Médicis.*
Les Écoles de Pharmacie*
La Fortune Conservatrice.*
Le Musée Napoléon { Salle de l'Apollon* / Salle du Laocoon* } (Two medals.)
La Légion d'Honneur.*
L'École des Mines du Mont Blanc.*
Le Camp de Boulogne.*
Construction des deux mille Barques.*
Le Code Napoléon.*
1804. Le Couronnement à Paris* (4 medals).
Le Sacre.*
Repas donné par la ville de Paris.
Fêtes du Couronnement.
Distribution des Aigles.*
La Monnaie des Médailles rétablie.*
Société Centrale de Vaccine.*

1805. Visite du Pape Pie VII.*
Couronnement à Milan.*
Le Tombeau de Desaix.*
Autre, avec inscription.*
La Ligurie réunie à la France.*
Les Écoles de Médecine.*

PREMIÈRE CAMPAGNE D'AUTRICHE.

Levée du Camp de Boulogne.*
Allocution sur le Pont du Lech.*
Capitulation d'Ulm et de Memmingen.*
Prise de Vienne et de Presbourg.*
Reprise des Drapeaux à Inspruck.*
Bataille d'Austerlitz.*
Les trois Empereurs.*
Entrevue des deux Empereurs.*
Députation des Maires de Paris et Schoenbrünn.
Paix de Presbourg.*
Cathédrale de Vienne.*
Conquête de Venise.*
1806. Conquête de l'Istrie.*
Conquête de la Dalmatie.*
Conquête de Naples.*
Souverainetés données.*
Mariage du Prince de Bade.*
Colonne de la Grande Armée.*
L'Arc de Triomphe.*

CAMPAGNES DE PRUSSE ET DE POLOGNE.

Confédération du Rhin.*
Bataille d'Iéna.*
Autre, sur le même sujet.
Entrée à Berlin.*
Capitulation des quatre Forteresses de la Prusse.*
Alliance avec la Saxe.*
Occupation de Hambourg.*
1807. Les Aigles Françaises sur la Vistule.*
Bataille d'Eylau.*
Séjour à Ostérode.*
Bataille de Friedland.*
La Victoire du 14 Juin.*
Occupation des trois Capitales.*
Conquête de la Silésie.*
Paix de Tilsit.*
Le Grand Duché de Varsovie.*
Le Royaume de Westphalie.*
Mariage du Roi de Westphalie.*
Réunion de l'Étrurie à l'Empire.*
Le Simplon.*
Route de Nice à Rome.*
L'Aigle couronnée.*

CAMPAGNE D'ESPAGNE.

1808. L'Entrée à Madrid.

SECONDE CAMPAGNE D'AUTRICHE.

1809. Rupture du Traité de Presbourg, et Batailles d'Absenberg et d'Eckmühl.*
Départ de Paris et entrée à Vienne.*
Bataille d'Essling et passage du Danube.*
Prise de Raab.*
Attaque d'Anvers et Séjour à Schoenbrünn.*
Réunion de l'État Romain à l'Empire.*
Rome seconde Capitale.*
Conquête de l'Illyrie.*
Bataille de Wagram.*
Paix de Vienne.*

1809. Visite du Roi de Saxe à la Monnaie des Médailles.*
1810. Visite du Roi et de la Reine de Bavière à la Monnaie des Médailles.*
Mariage de l'Empereur* (4 medals).
L'Amour emportant la Foudre.*
Visite du Grand Duc de Wurtzbourg à la Monnaie des Médailles.*
Statue de Desaix.*
Le Canal de l'Ourcq.*
Orphelines de la Légion d'Honneur.*
Pompe Funèbre du Duc de Montebello.
1811. Naissance du Roi de Rome.*
Baptême du Roi de Rome.
Le Roi de Rome* (3 medals).

CAMPAGNE DE RUSSIE.

1812. Prise de Wilna.*
Bataille de la Moskowa.*
Entrée à Moscou.*
Les Aigles Françaises sur le Borysthène.*
Les Aigles Françaises sur le Wolga.*
Retraite de l'Armée.*
Fondation de l'École des Beaux Arts à Rome.
1813. Bataille de Lutzen.*
Bataille de Wurtchen.*
Le Monument du Mont Cenis.*
1814. Février, 1814.*
1815. Retour de l'Empereur.*
L'Impératrice Marie-Louise.*
La Princesse Élisa.*
La Princesse Pauline.*
La Reine de Naples.*
La Reine Hortense.*

NOTE.—Those marked thus (*) were ordered by the Government, and designed and executed under the direction of M. Denon.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 74.

PETITION

OF

CHARLES MURPHY,

PRAYING FOR

Compensation for extra work done, property lost, and damages sustained under a contract dated July 18, 1873, *for excavating a pit for a dry-dock at Mare Island, California.*

APRIL 9, 1884.—Referred to the Committee on Claims and ordered to be printed.

To the Senate of the United States:

Your petitioner, Charles Murphy, a resident citizen of Vallejo, in the State of California, respectfully says:

That on the 18th day of July, 1873, he entered into a contract with the United States to excavate the pit for a dry-dock at Mare Island, California, in one hundred and twenty days, at 74 cents in currency per cubic yard, executed an approved bond in the sum of $50,000, and at once began work.

That the Government agreed to keep the pit free from water. In consequence of the refusal of Calvin Brown, the Government's engineer in charge, to pump out the tide-water within the coffer-dam that ebbed and flowed over one-half the area of the pit, and covered the same in places to a depth of several feet, great injuries resulted to your petitioner, in proof whereof he refers to testimony submitted by him to Congress, and printed by an order of the House of Representatives made February 25, 1884, as an appendix to House Report No. 483, for the first session of the Forty-eighth Congress.

The damages which accrued to your petitioner because of the limited space in which he had to work were—

1st. He had a small area to work in.

2d. He could not plow.

3d. He had steep roadways to haul out on while he used carts.

4th. He soon had to abandon carts and hoist out dirt with steam power.

5th. He had to winter over his stock.

6th. He had to lay twenty-one railroad tracks in the pit, erect an elevator, construct a railroad to the tules, three-fourths of a mile off, and to build suitable railway cars, all because he could not use carts to transport his material, and he had previously procured the horses and carts necessary to do all this transportation.

7th. The water in the pit reduced a great deal of the material excavated from solid earth to slime or porridge, and he was compelled to

handle it several times. (Brown, 59, page 93; Fazackerly, 228, page 47; Agnew, 85, page 75; Brown, 180, page 101; Fazackerly, rebuttal, 16, page 132.)

8th. He could not execute his contract in one hundred and twenty days.

Now, if that pit had been free of water, so he could have had the whole area to work in, he could have plowed, had light-grade roadways, transported all his material excavated by means of horses and carts, been saved the expense of hoisting-engine, elevator, railway tracks and cars, and the wintering of his stock, and he could have completed his contract in one hundred and twenty days.

Calvin Brown admitted that he could have completed the contract in time if the pit had been free of water. (Ans. 222, page 103.)

Your petitioner also alleges that because of oppressive acts committed against him by said Calvin Brown, civil engineer in charge of the dry-dock for the United States, further damages resulted to your petitioner, as will appear from the following specific statements, each of which is supported by ample and uncontroverted testimony:

1st. He was not permitted to land the forage for his stock on the island. (Fazackerly, 168, page 45.) Driscoll, another contractor, could haul and store upon the island all he wanted. (Fazackerly, 352, page 52.)

2d. He was deprived of water for his stock and engine. (Fazackerly, 171, page 45.)

3d. Driscoll was permitted to dump from 9,000 to 10,000 yards of material within 50 to 400 feet of his hoisting works, but all his material he had to haul right by Driscoll's deposits, and for half a mile beyond, onto the mud flats where tide water rises 6 and 7 feet daily. (Von Geldern, 54 to 59, page 127.)

4th. He was prohibited the use of power. This was willful persecution. Witnesses testified that Brown was told that this prohibition would ruin him. Fazackerly, his foreman, told Brown, "You might as well cut his head off." (Denio, 47, page 28.)

Brown's plea was that blasting injured the coffer-dam. Blasting could not be heard outside the pit. But cannon firing from the battery of ten or twelve heavy guns not over 300 feet off, which shook the buildings and banks (Colby, 45, 46, page 118), could be heard over 10 miles away. Brown did not stop that, for they had to fire salutes for public officials who came to see the works. At the last visit there of Hon. Frank Page, in the fall of 1883, your petitioner heard these cannon saluting him at Napa, which is 16 miles off.

5th. Calvin Brown "put up" serious caves on him—caves of the bank. Brown undermined the bank, and it fell down. (Agnew, 22 to 29, ans. 50 to 52, pages 73, 74.) Agnew swore that Brown did this to hurt him. (Ans. 57 to 60, page 74.)

6th. He was compelled to build a roadway 30 feet wide across the mud flat, instead of being allowed to fill outwardly from the main land. Tide water ebbed and flowed there 6 and 7 feet daily. Such an order would have ruined any contractor. (Fazackerly, 57 to 77, page 40; Leary, 9 to 59, page 58; McManus, 18 to 50, page 66; Cord, 27 to 37, page 63; Agnew, 70, page 74.)

7th. Calvin Brown was hostile to your petitioner in every way that an officer could be and be "a white man." (Agnew, 58 to 60, page 74; Davis, 28 to 30, page 71; Leary, 100, page 62; Armstrong, 61 to 72, page 89.)

Agnew said it was Brown's "motto" to *impede* him all through. Davis

said Brown's unfriendliness was the general talk of the navy-yard. Leary swore that Brown threatened to put *him*, as well as *your petitioner*, off the island. Armstrong swore that Brown "polished Murphy off" to the admiral commanding the station.

The officials at Mare Island worked on the excavation of the pit about a year before it was found desirable to let the work at private contract. They got out 18,900 cubic yards from near the surface, and they dumped it close by on dry, hard ground. After your petitioner's contract was annulled they resumed the work, and it cost the Government $3.10 per cubic yard for picking and shoveling alone. But, besides this, it cost the Government for tools, railroads, inclines into the pit, cars, horses, fodder, workmen, steam-hoisting engines, and other accessories, which must have swelled the cost of excavating that pit by the Government up to $5 per cubic yard, gold coin. If Calvin Brown had had the full management of this excavation from beginning to end it would have cost the Government nearly a million dollars. But your petitioner was doing this work for 74 cents currency.

Calvin Brown was liberal in his management, for while your petitioner worked at Mare Island the civil engineers, bosses, and photographers mustered twenty-one strong on pay day. The pay of these men alone aggregated over $——— per month.

When your petitioner began this contract he was well off financially. But all his property, worth $50,000, has been sold at sheriff's sale. He has come here from California at least six times to get redress and save his property. His litigation, carried to the Supreme Court, has cost him over $5,000.

A word as to the trial in the Court of Claims.

After your honors have read the findings of that court on page 153, and then the criticism upon the findings by Mr. Price, on pages 3, 4, and 5, in his preliminary report (No. 483) to the House of Representatives, your petitioner asks with due respect, would any Senator be guilty of rendering such an unrighteous decision as the Court of Claims adopted in his case? He admits that there should be an end to litigation, but as justice is the end of all government, is it ever too late to correct an unjust decision?

The secret of Calvin Brown's hostility to your petitioner was this: In 1864 he sent a complaint to the Navy Department about the faulty construction of a sea-wall which was being built at Mare Island under Brown's superintendence. The Department appointed a commission to investigate the work. Mr. Brown forthwith resigned. He was out of commission until President Grant reinstated him, about 1869.

That incident will enable you readily to understand why Calvin Brown broke up your petitioner.

True, he had his own reputation to preserve, for he had been sent to England and France, at public expense, to learn how to build a coffer-dam. He built one at Mare Island of a *rectangular* (instead of a *circular* or *triangular*) front to the sea, and it was so weak that he was afraid to draw the water out inside the dam—which covered about half the surface of the pit that I was to excavate—for fear the dam would tumble in. Notwithstanding the dam had the benefit of the pressure of the water on the inside to help hold it up, it did tumble in October 5, 1873.

This dam twice tumbled. The witness, Cord, testified (ans. 47, page 64) that *the whole face of the coffer-dam* tumbled in before your petitioner commenced his contract. Look how Von Schmidt, consulting engineer, reported against it January 12, 1874. (Page 165.)

Some of your honors may contend that Brown's refusal to pump out the water from the coffer-dam was more to preserve his reputation as an engineer than to injure your petitioner. Concede this, but it ruined him all the same.

Your petitioner went to the courts for redress, but the "Government" was too strong for him; the Supreme Court finished him in a decision of *only ten lines.*

Your petitioner now comes to Congress for relief, and he presents for your just consideration the following bill for work done and for damages suffered by him while he was excavating the dry-dock pit at Mare Island:

I.—FOR WORK DONE.

1st. Extending pit 30 feet, 50 feet deep, 219 feet wide, aggregating 12,166 cubic yards, at $1.50 per yard	$18,249 00
2d. For excavating timber slide 22 feet long, 44 feet wide, 50 feet deep, aggregating 1,792 cubic yards, at $1.50 per yard	2,688 00
3d. Increasing depth of the pit 2¼ feet, 146 feet wide, 500 feet long, aggregating 7,491 yards, at $1 per yard	3,379 63
4th. Increasing width of pit 4 feet, 50 feet deep, 590 feet long, aggregating 3,703 cubic yards, at $1 per yard	1,851 00
5th. 3,000 cubic yards, dumped within wings of coffer-dam, slid through into the pit. It was removed a second time, at $1	3,000 00
6th. 1,000 cubic yards slid into the pit when the coffer-dam burst; removed this at $1 per yard	1,000 00
7th. 2,605 cubic yards cut off from first survey at time of first payment, at 74 cents per yard	1,928 00
8th. Excavated 4,830 cubic yards without the lines of the pit, at 74 cents per yard	3,574 00
9th. The Government engineers, in their first survey, estimating cubic yards to be removed as 90,000 to 95,000, were 11,827 yards short. Value for removing this at $1 per yard	11,827 00
Still due for work done	47,496 63

Items 3 and 4 are only one-half charged for, as only one-half was done.

II.—DAMAGES

(which your petitioner claims should have been accorded because of the oppressive acts to him of the Government's agents).

1. Limited space while removing 62,907 yards; add 26 cents per yard	$16,355 82
2. Prohibition of powder while removing 16,547 yards; worth $1.50 per yard more	24,820 50
3. Dumped on mud flat, 20,969 yards; worth 50 cents additional	10,484 50
4. Expense of feeding stock through winter of 1873	2,390 00
5. Delayed by Government's tearing up his track to lay its own	300 00
6. Extra distance traveled to fill north wing of coffer-dam	300 00
Damages sustained during excavation	54,650 82

III.—DAMAGES

(further sustained by your petitioner for loss of property sold on execution by the sheriff).

1. 840 acres of land, at $20 per acre	$16,800
2. 40 acres vineyard, at $300 per acre	12,000
3. 120 acres land, at $20 per acre. Makes 160 acres.	2,400
4. Machinery, horses, cars, tools, &c	18,000
Individual property sacrificed	49,200

RECAPITULATION.

1.	Work done	$47,496 63
2.	Damages	54,650 82
3.	Property lost	49,200 00
	Total claimed	151,347 45

Your petitioner refers the Senate to the report No. 483 rendered in his case to the House of Representatives, wherein a committee has allowed his claim for work done, and a minority of the same committee has recommended that his claim for damages be also allowed. He prays that speedy action may be taken upon his case, and that justice may be done therein.

And he will ever pray.

CHARLES MURPHY.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 75.

IN THE SENATE OF THE UNITED STATES.

APRIL 14, 1884.—Ordered to lie on the table and be printed.

Mr. GARLAND submitted the following

RESOLUTION:

Resolved, That the Committee on Finance be instructed to inquire whether the Secretary of the Treasury should not be authorized and directed to carry out the provisions of the thirteenth and fourteenth sections of the act of Congress approved June 23, 1836, entitled "An act to regulate the deposits of the public money," by making the deposit of the fourth installment which was postponed by the act of Congress of October 2, 1837, entitled "An act to postpone the fourth installment of deposit with the States," with such of the States then entitled thereto and which have not received the same, out of the present existing surplus revenue not otherwise appropriated in the manner provided by said act of 1836, and report by bill or otherwise.

C

48TH CONGRESS, 1st Session. } SENATE. { MIS. DOC. No. 76.

LETTER

OF

HON. H. M. TELLER, SECRETARY OF THE INTERIOR, TO HON. JOHN SHERMAN,

IN RELATION TO

House Resolution No. 224, providing for the distribution of certain public documents.

APRIL 14, 1884.—Ordered to be printed to accompany House Resolution No. 224.

DEPARTMENT OF THE INTERIOR,
Washington, April 11, 1884.

SIR: Replying to your communication of the 10th instant, inclosing a joint resolution of the House, providing that certain documents shall be supplied by the Secretary of the Interior to the Cincinnati law library, I have the honor to inform you that the only documents enumerated therein that can now be furnished by this Department are a partial set of those that are usually denominated Congressional documents, embracing the journals and executive and miscellaneous documents and the reports of the committees of the two houses of Congress.

Of these documents, the Department can furnish such as belong to the last six Congresses and a portion of certain of the preceding Congresses. The Department can also supply a partial set of the Annals of Congress. The surplus copies of the reports of the Supreme Court remaining after the distribution directed by law is made, are delivered to the Librarian of Congress, to be deposited in the Congressional Library. I have no information that the reports of the circuit and district courts of the United States are held for distribution by any Department of the Government.

The Revised Statutes and the Statutes at Large are now distributed by the honorable the Secretary of State. The Congressional Globe and Record have never been printed for distribution by any Department of the Government, most of the Departments being obliged to purchase from the Government Printer such as are required for their own official use. Such as are still available for distribution are in the hands of the Public Printer.

It is therefore evident that but a small portion of the documents named in the resolution can be supplied by this Department. It is suggested, in order to secure the object desired, that the resolution be amended in such way as to provide that in case the documents enumerated are not at the disposal of the Secretary of the Interior, he

2 [redacted]

[redacted] would be authorized to call for the same from any Department or office of the Government from which they may be withheld, or from the decision of the executive officers in which charges for [redacted] may be submitted to the President.

Very respectfully,

E. M. WELLER,
Secretary.

Hon. [redacted],
United States Senate.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 77.

IN THE SENATE OF THE UNITED STATES.

APRIL 15, 1884.—Ordered to be printed.

Mr. MORGAN submitted the following

RESOLUTION:

Resolved, That the Committee on the Judiciary be directed to inquire and report whether Paul Strobach, whose confirmation as marshal of the middle and southern judicial districts of Alabama has been rejected by the Senate, is now discharging the duties of that office, and whether he is entitled to execute the powers and duties of such office in the place of M. C. Osborn, who was suspended by order of the President in the vacation of the Senate.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 78.

LETTER

OF

HON. J. B. EDMONDS,

PRESIDENT OF THE BOARD OF COMMISSIONERS OF THE DISTRICT OF COLUMBIA,

COMMUNICATING,

In response to Senate resolution of the 29th of June, 1882, information concerning school premises for colored schools in the District of Columbia.

APRIL 16, 1884.—Referred to the Committee on the District of Columbia and ordered to be printed.

OFFICE OF THE COMMISSIONERS,
DISTRICT OF COLUMBIA,
Washington, April 14, 1884.

SIR: The Commissioners, in replying at this time to the resolution of the Senate requiring information as to school premises pertaining to colored schools in the District of Columbia, passed June 29, 1882, beg leave to say that the resolution had been mislaid at the time a change was made in the personnel of the Commission and that their attention has only been recently recalled to the subject.

The only piece of property that can be ascertained as having been "given for the use of colored schools" is the site of the Lovejoy school, by act of Congress of July 28, 1866.

The schools used by colored pupils in Washington and Georgetown are embraced in the following list:

Name.	City.	No. of rooms.
Chamberlain	Georgetown	8
Stevens	Washington	10
Randall	do	11
Miner	do	10
Sumner	do	11
Garnett	do	12
Anthony Bowen	do	8
John F. Cook	do	11
Rented building	do	4
Do	do	4
Banneker	do	8
Lincoln	do	11
Lovejoy	do	6

With the exception of the Lovejoy and Miner, all of the above sites have been purchased at various times, some of them during the separate administration of the schools by two boards, one of white and the other of colored trustees, and others since they have been conducted

by one board of trustees composed of white and colored members. The Miner is a building rented under a trust to the District for the use of colored schools. The Lovejoy can only be used, under the terms of the act of Congress, for colored pupils. The Chamberlain, Stevens, Sumner, John F. Cook, Anthony Bowen, and Lincoln were conveyed to various persons then trustees of colored schools. The Garnett, Randall, and Banneker have been purchased by the District of Columbia.

Every need for the education of pupils of the colored race is met by the schools already provided, and their growing wants are supplied by the erection of new buildings. It has been deemed desirable to abandon all distinctions of interest between the two races; they attend at separate schools, and that is the only distinction. The interests of the schools are identical; they are supported out of the same appropriation, and the respective school property, with the exception of the Lovejoy and the privileges of renting the Miner only for colored pupils, is all regarded by the Commissioners as held for the use of white and colored pupils alike.

Should any more detailed information be required by the Senate, it will be duly furnished.

Very respectfully,

J. B. EDMONDS
President.

Hon. GEORGE F. EDMUNDS,
President pro tempore United States Senate.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 79.

IN THE SENATE OF THE UNITED STATES.

APRIL 17, 1884.—Ordered to lie on the table and be printed.

Mr. WILSON submitted the following

RESOLUTION:

Whereas the Constitution delegates to Congress the power "to regulate commerce with foreign nations, and among the several States, and with the Indian tribes:" Therefore be it

Resolved, That it is competent for Congress, in the exercise of the power so delegated, to provide by law for such regulation of the transportation of commerce among the several States, as shall include a system of maximum and minimum rates of charges for the same; for free competition between the limits so fixed; for the prohibition of discriminations of any kind whatever, either in favor of or against cities, towns, or other localities, whether the same be competing or non-competing points; for applying the same principle to transportation for individuals, firms, associations, or corporations in all matters relating to commerce among the States; for the preservation and enforcement of the right of shippers to select the lines and parts of lines over which their shipments shall pass, to the end that said commerce may avail itself of the all rail or part rail and part water routes of the country; for the prevention of such pooling arrangements and agreements to refrain from just competition as may tend to impose unreasonable burdens upon said commerce among the States; for the protection of said commerce against unjust exactions based on a class of securities commonly denominated "watered stock," and for the promotion of the true interests of both the corporations employed in such transportation, and the people and localities engaged in such commerce, by an enforcement of the principles hereinbefore stated, and thereby induce harmony and stability in the affairs of the said corporations, people, and localities.

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 80.

IN THE SENATE OF THE UNITED STATES.

APRIL 21, 1884.—Referred to the Committee on Foreign Relations and ordered to be printed.

Mr. FRYE, by request, submitted the following

RESOLUTION:

Resolved, That the President of the United States be, and he is hereby, requested to institute negotiations with the Government of the King of Spain for a reference to an umpire for decision of the question whether the treaty of 1819 has been fully carried into effect by the United States, and whether there are obligations under, or growing out of, or in connection with the said treaty which it is claimed that the United States of America have failed to perform and carry out, and to settle and finally decide what amounts remain to be paid by the United States.

O

[Calendar No., 502.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 81.

IN THE SENATE OF THE UNITED STATES.

APRIL 21, 1884.—Ordered to be printed.

Mr. FRYE, from the Committee on Rules, reported the following

RESOLUTION:

Resolved, That the service of Wilbur F. McDaniel, provided for by Senate resolution of May 20, 1879, be terminated May 1, 1884.

O

[Calendar No., 578.

48TH CONGRESS, 1st Session. } SENATE. { MIS. DOC. No. 81.

IN THE SENATE OF THE UNITED STATES.

APRIL 21, 1884.—Ordered to be printed.

MAY 8, 1884.—Ordered to be printed.

Reported by Mr. JONES, of Nevada, with an amendment, to wit, omit the part in [brackets] and insert the part printed in *italics*.

Mr. FRYE, from the Committee on Rules, reported the following

RESOLUTION:

Resolved, That the service of Wilbur F. McDaniel, provided for by Senate resolution of May 20, 1879, be terminated May [five] *nine*, 1884, and the Secretary of the Senate is hereby authorized and directed to pay out of the contingent fund of the Senate, for the aid and support of the said Wilbur F. McDaniel, who was disabled for life while in the service of the Senate as a page, the sum of seven hundred and fifty dollars, to be paid to the Rev. Wilbur F. Watkins, of New York City, in trust for the above-mentioned purpose.

O

[Calendar No., 501.

48TH CONGRESS, 1st Session. } SENATE. { MIS. DOC. No. 82.

IN THE SENATE OF THE UNITED STATES.

APRIL 21, 1884.—Ordered to be printed.

Mr. FRYE, from the Committee on Rules, reported the following

RESOLUTION:

Resolved, That Rule 33, of the Standing Rules of the Senate, be amended by inserting after the words "judges of the Court of Claims" the words "the Commissioner of Agriculture," and by striking out in line 22 the word "extension."

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 83.

IN THE SENATE OF THE UNITED STATES.

APRIL 22, 1884.

Mr. CONGER submitted the following resolution, which was considered, agreed to, and ordered to be printed:

Resolved, That the Secretary of War is hereby directed to cause an inquiry to be made on the following points and to report to the Senate:

1st. As to the amount and value of all aids and grants of any kind from the United States to the State of Michigan for the Portage Lake and Lake Superior Ship-Canal, or to any agent, trustee, or assignee of said State of any such aids, whether person or corporation, up to the present time, computing the value of any and all lands donated therefor by the General Government at the rate of $1.25 per acre.

2d. As to all other receipts, whether tolls, grants, privileges, or moneys received by the State of Michigan, direct or through its agents, assignees, &c., as aforesaid, for and on account of construction, repair, or operating said canal up to the present time.

3d. As to all proper cost and charges for expense of construction, repairs, or operating said canal up to the present time from or by the State or its said agents, trustees, assignees, &c., and shall report to the Senate the result of such inquiry; and shall also report, from the best information obtainable, upon what terms and conditions it would be just and proper for the United States to procure and take possession of said canal for the purpose of making the same a free water-way for the use and benefit of navigation and commerce.

4th. And also to inquire and ascertain upon what terms and conditions the Portage Lake and River Improvement Company will surrender and convey to the United States, for the purpose of making the same free to the general public for navigation and commerce, all their rights, title, and interest in and to the Portage River Improvement (so called), with each and all the appurtenances belonging thereto, including piers, canal cuts, embankments, &c., as well as any and all rights of way to and through Portage Lake and said Portage River and the approaches thereto; and whether such terms are reasonable and proper to enable the United States to make said water-way free to the public, and such other information as may be obtained relating to the aforementioned subjects.

O

H CONGRESS, } SENATE. { MIS. DOC.
Lst Session. { { No. 84.

LETTER

FROM

HE SECRETARY OF STATE,

TO THE

CHAIRMAN OF THE SENATE COMMITTEE ON THE LIBRARY,

lative to a plan formed by Mr. B. F. Stevens to supply copies of certain npublished papers appertaining to the history of the United States in the rchives of Europe.

IL 24, 1884.—Referred to the Committee on the Library and ordered to be printed.

DEPARTMENT OF STATE,
Washington, April 16, 1884.

IR: On the 27th January, 1883, there was referred to you a letter dressed to me by Mr. B. F. Stevens, despatch agent of the United tes at London, relative to a plan formed by him to supply transcripts certain unpublished papers appertaining to the history of the United tes in the state paper offices of England and France, to be added the archives preserved in this Department. His proposition was ommended to me by Mr. Lowell, our minister at London, whose let- was sent to you at the same time. These communications were nted under designation of "Senate Mis. Doc. No. 29."

In consequence of further correspondence, and at my request, Mr. evens, on the 17th ultimo, reported to me the present condition of his rk, and he also informed me that he finds it necessary to withdraw s proposal to furnish a manuscript copy of the documents he has dis-, vered, and asks authority to provide, instead, a printed copy of them. His statement appears to be of such importance that I have the honor submit it to you for consideration in connection with the former let- ; which is still before the Library Committee. I also transmit the ecimen printed volume alluded to in his letter, and a report on the bject made to me by the officer in charge of the archives in this De- rtment.

As I have no authority to incur the expense which the acceptance of is proposition would involve, I renew the suggestion made with re- ect to the former letter, that provision be made either by a special act, by a clause in the proper appropriation act, to enable me to acquire e compilation or to carry out any plan that may be determined on for publication.

The inadequacy of the archives in my custody to represent the entire tory of the establishment of this Government has been remarked by ery distinguished writer or student who has had access to them.

Several ineffectual efforts have been made to obtain the documents cessary to supplement and complete our collection from the records

of those countries with which the United States had relations during the last century. Under permission accorded by the English Government in 1881, the Librarian of this Department was instructed to select the papers in the Public Record Office at London concerning the negotiations for the treaty of 1783; but the task was found to require more time than he could command, and it was abandoned. The Department has found no other opportunity to prosecute the work.

Mr. Stevens seems to have performed all the labor required to bring to light the papers which are of interest to us in the English, French, and Dutch archives, and has prepared a large part of them to be immediately placed at the disposition of the Government.

Being convinced that these documents are necessary for our collection and of the inutility of causing another and separate search to be made, I commend Mr. Stevens's proposition to your serious consideration.

I have the honor to be, sir, your obedient servant,

FRED'K T. FRELINGHUYSEN.

Hon. JOHN SHERMAN,
Chairman of the Library Committee,
Senate of the United States.

[Enclosures.]

1. Copy of letter from Mr. B. F. Stevens, March 17, 1884.
2. Specimen volume, "Peace Negotiations, Paris, 1782-'83."
3. Senate Mis. Doc. No. 29 (Forty-seventh Congress, second session).
4. Report of T. F. Dwight, April 14, 1884.

[Enclosure No. 1.]

Mr. Stevens to Mr. Frelinghuysen.

UNITED STATES GOVERNMENT DESPATCH AGENCY,
4 TRAFALGAR SQUARE, LONDON,
March 17, 1884.

SIR: In compliance with your request for further information, I take pleasure in formulating my views concerning the project of obtaining copies of all documents in the European archives illustrative of the early history of the United States, and especially those bearing upon the American Revolution and the war of independence substantially as communicated by the Assistant Secretary of State to Congress, and published in Senate Mis. Doc. 29, Forty-seventh Congress, second session.

The three great governments, England, America, and France were parties to the Revolution in America, and to the peace negotiations.

Our own national archives by themselves go little further than to illustrate the *American* phase of the history of this period, while the combined archives, American and European, clearly show the Revolution to have been of European origin—England at war with all nations, and American independence the price of an universal peace.

The history of this period in America, and from the American stand-point only, has been treated by eminent writers, but no one has yet published the authentic documents showing the Revolution was begotten, directed and managed largely in Europe, and by the British officers in America in conflict with the Americans who accepted the challenge and completed the Revolution.

I submit that the whole subject cannot be satisfactorily dealt with until our own national collection of documents shall embrace the English and the French sides as well as the American, together with all documentary details of the moving causes and influences which resulted in the Paris peace treaty in 1783.

I desire, under your direction, to make a careful compilation of all unpublished documents that can be found in the European archives illustrative of the British side of the American Revolution, and also illustrative of the side of France and our allies.

The British documents should include the acts and instructions of the King, the ministry, and the Parliament, together with the diplomatic, political, military and

naval correspondence of the British Government with the several governors of the then colonies; with the commanders-in-chief of the King's forces in America; between the British officers themselves, including the Hessians, the loyalists, the refugees, and with the prisoners; those supplying secret intelligence, &c.; and also the correspondence between the American and British officers direct. This latter, I repeat, has already been partly treated from the American side.

The warrants, accounts, &c., of the extraordinary and other expenses of Generals Clinton and Carleton include much information of a biographical and genealogical interest, as well as of military and financial importance.

The political and miscellaneous correspondence of the British Government with the colonial governors, magistrates, agents, and others, and the colonial memorials, petitions, &c., exhibit a distinctive phase of the Revolution, which phase is as much American as English, and which still remains a part of the unwritten history of the American Revolution.

The acts of the several American colonies, each under the certificate of the governor with the colonial seal, being subject to the King's approval, were separately referred to the privy council and by it to the law advisers. The reports, approvals, objections, proclamations of allowance or of disallowance, and generally the entries in the minutes of council would be exceedingly interesting if all the steps and information upon each act should be gathered together and printed with it, thereby illustrating the great influence of the English Government upon the colonial legislation and its executive privileges.

The unprinted military and naval correspondence of Generals Gage, Howe, Clinton, and Carleton, while commanders-in-chief of the British forces in America, directly with their own Government; and the correspondence of the British officers in America with the civil and political officers, the loyalists and refugees in America, I repeat, bears quite as much upon the history of the American Revolution as does that between the British and American officers. This phase of the history of the war of independence has not, I believe, yet been dwelt upon.

This remark applies equally to the military peace negotiations carried on in America between the British commissioners there and General Washington and other American officers quite independently of the diplomatic negotiations going on at the same time in Paris, a point to a great extent lost sight of. This military peace negotiation would form an important subdivision of the proposed compilation.

The more important *diplomatic* peace negotiations in Paris would of course include all of the unpublished correspondence touching America between the British ministers themselves in London and with their commissioners in France, Holland and Spain during the Paris negotiations, and also between the British commissioners in Paris and the French Government, and between them and our own commissioners.

This proposed compilation, on precisely the same general lines, should extend to the French phase of the whole subject, and include the correspondence of the French ministers themselves prior and subsequent to the treaty of alliance; the inducements to France to enter into the alliance; the sending of ministers to America; the open and the secret instructions and correspondence between the French Government and its diplomatic, military and naval officers in America, and should also include the privately supplied intelligence concerning both the American and British officers individually, civil and military; and to the current measures and plans of the operations in America, as communicated to the French court from day to day.

The journals or log-books of the French ships of war while serving in the Revolution, with the names of officers and crews, the casualties, &c., and particulars of various expeditions; the court-martial of D'Estaing, the proceedings at his trial, the rewards to his fleet, &c., and also the correspondence between the French military and naval officers and General Washington and other American officers would all come into the proposed compilation.

The French phase would also include the correspondence between the French Government and its representatives in London until they were withdrawn, and between the French Government and the British peace commissioners in Paris, as also with the American commissioners, and with the representatives of Holland, Spain, &c.

The diplomatic correspondence in the Paris peace negotiations may, I think, be most conveniently dealt with in two or more divisions—beginning the latter series with the introduction of Oswald as the British negotiator in the spring of 1782, and ending with the 1783 treaty and the exchange of its ratifications.

I have estimated that the unpublished manuscripts representing the American, the British, and the French phases of the Paris diplomatic negotiations from the spring of 1782 to the 1783 treaty will make three or possibly four volumes of about six hundred pages royal octavo, similar to the thirty-two specimen pages which I have the honor to submit herewith in a dummy volume of five hundred and seventy-six pages. These thirty-two pages are repeated in order to show the general appearance of a proposed volume.

I am so far prepared with the material for this one series of papers that I can im-

mediately proceed with the printing, indexing and delivering these three or four volumes upon receiving your instructions to this end.

The earlier Paris negotiations (American, British, and French) down to March, 1782, will perhaps make two uniform volumes, which could be rapidly proceeded with after the above series is in type.

The *military* peace negotiations already mentioned could, I think, be all printed in one volume uniform with the others.

In November, 1882, I had the honor to inform you that I had then for a long time been collecting this authentic documentary material and information. My letter was the occasion of the Senate document herein referred to and which has not yet been acted upon.

I have continued and am continuing my work as set out in that letter.

I am told that my permissions from the respective authorities to peruse, calendar, index, and copy the documents, or any of them, bearing upon America and American affairs are wider than have before been granted.

My searches in London, Paris, The Hague, and Amsterdam have resulted in my indexing above sixty thousand papers in the European archives from 1772 to 1783, upon the *great* subject. Very many of these papers exist in two or more states, as drafts, originals, duplicates, ciphers, copies, &c., and these copies are often found in more than one of the collections of archives.

I have made no estimate of the number of separate or distinct papers in the several series of European archives counting all copies of each paper as if only one, but I venture to guess that the *unpublished* documents during the period of the Revolution will make about twenty volumes of about six hundred pages each, similar to my present specimen.

My chronological and alphabetical indexes referring to the sixty thousand papers are the only indexes of them in existence, and they make these valuable collections of wholly unclassified manuscripts available to me for a systematic compilation of the documents upon various desired subjects under a homogeneous and convenient arrangement with ready reference to the several copies of each paper for careful comparison, and for noting the differences in the text, indorsements, &c.

In order to make these compilations accurate with references to the published and unpublished papers, it will be absolutely necessary from many points of view to put the work into type, and to compare the proof-sheets in Europe with the original manuscripts, so that all variations touching each and every paper may be duly registered, and to this end it will be especially desirable to have at least an entire volume of matter in type at the same time.

In view of this necessity to put the work into type I am led to hereby withdraw my original proposition for supplying one manuscript transcript, as submitted to you in my letter of November, 1882, and instead I now submit this modified plan for providing printed copies of all the American papers in the European archives within the period of the American Revolution.

Some of the papers in the European archives are already printed in the Diplomatic Correspondence of the Revolution; Sparks's Life and Writings of Franklin: Sparks's Life and Writings of Washington; the Correspondence of the Revolution, and elsewhere, but by far the larger part has never been published.

My modified plan is to provide an authentic printed documentary history without narrative form beyond that given by the classification of subjects, the arrangement of the matter in chronological order, and copious references. In short, my proffered services would embrace—

1. The original researches, extending over several years, by myself and a corps of intelligent assistants, resulting in the practical discovery of these documents.

2. The preparation of my chronological and alphabetical indexes, which, I repeat, are the sole key to the American papers in the European archives as a combined collection. These indexes will be the basis of my compilation.

3. The transcription of all documents which have not been printed, the comparison of them with the originals, copies, and drafts, whether in London, Paris, The Hague, or Amsterdam.

4. The comparing of those papers which have been printed already, and making references to the printed volumes, noting the discrepancies, the indorsements, the purposes, and giving such lucid information as will enable the student to use the proposed compilation with as much confidence as he could use the European archives themselves, even if it were possible for him to gain access to all the collections, and to have the documents systematically grouped for his ready reference and examination.

5. The translation into English of those original papers which are in a foreign language, and to print this translation with the original documents.

6. The supervision of the press, *i. e.*, the classification into subjects, the arrangement of matter in volumes, the proposed references, the correction of proof-sheets, the making of indexes to the printed volumes, and all the details which are usually *intrusted to* an editor.

7. And finally to deliver in printed form these authentic documents, which will become immediately available for the Department and the scholar, to be used in conjunction with the publications containing the documentary history, from the American stand-point, which have been issued by the Department under the authority of the Government.

Immediately upon receiving your instructions I can proceed with the three or four volumes of the herein proposed Paris diplomatic peace negotiations, 1782 to 1783, substantially like the specimen pages, and which volumes I repeat are now nearly ready for the press.

I will also proceed as you may direct with the earlier Paris diplomatic peace negotiations, also with the military peace and with the military political, civil, and miscellaneous correspondence, and in short with any or all of the documents within the scope of my searches, roughly estimated to make about twenty of these printed volumes.

I am willing to undertake to do all the work contemplated in my proposition upon such equitable terms as the Department may arrange with me, or—

I. I will supply the Department with one annotated, edited, printed copy of the American archives in Europe, uniform in style of type and literary labor with the dummy volume of specimen pages herewith, at $10 a printed page.

II. Or I will supply 1,000 copies of each volume, printed on good royal octavo paper, well bound in cloth, uniform in style and material with the dummy volume, at 1 cent a page for each copy; or 2,000 copies at three-quarters of a cent a page for each copy; or 3,000 copies for one-half of a cent a page for each copy; or 4,000 copies for forty-five one-hundredths of a cent a page for each copy; or 5,000 copies at four-tenths of a cent a page for each copy; or 6,000 copies at thirty-five one-hundredths of a cent a page for each copy; or 7,000 copies at thirty-two one-hundredths of a cent a page for each copy; or 8,000 copies at thirty one-hundredths of a cent a page for each copy; or 9,000 copies at twenty-eight one-hundredths of a cent a page for each copy; or 10,000 copies and upwards at one-quarter of a cent a page for each copy.

III. Or, upon being paid $10 a page for the one copy, as in proposition I, I will supply any required number of copies of each volume to average about 600 pages each, on good royal octavo paper, and well bound in cloth, similar to the dummy volume, by the thousand copies, at the further charge of $1 a volume.

IV. Or, I will cast stereotype plates from the standing type and print no copies whatever beyond those required for the immediate use of the Department and myself and sell these plates with all authors' or editors' rights I may possess to the Department absolutely at $12 a page.

I have, &c.,

B. F. STEVENS,
United States Despatch Agent.

[Enclosure 4.]

DEPARTMENT OF STATE,
BUREAU OF ROLLS AND LIBRARY,
April 14, 1884.

SIR: Concerning a letter from Mr. B. F. Stevens, of March 17, 1884, relative to his proposition to supply the Department of State with copies of documents from the archives of Europe, I respectfully report:

In a letter dated November 4, 1882, Mr. Stevens proposed to supply the Department with transcripts of such unprinted documents from the record offices of London and Paris as relate to the colonial and revolutionary history of the United States. His statement was accompanied by a letter from Mr. Lowell recommending the scheme and expressing his opinion that Mr. Stevens was peculiarly fitted to perform the projected work.

These letters were transmitted to the Joint Library Committee of Congress by the Assistant Secretary, with a suggestion that there should be inserted in the proper appropriation bill a clause to provide the funds required for this object to be placed at the disposition of the Department. This communication was reported to the Senate and thereupon recommitted to the same committee, and printed as Senate Mis. Doc. No. 29 (Forty-seventh Congress, second session). The committee has as yet made no report on this subject.

The letter under present consideration is upon the same subject. Mr. Stevens repeats in it in part his former statements as to the character of the papers he proposes to supply. During his searches since 1882, which have extended to Holland, the material has amplified somewhat, and he now finds that his indexes comprise above sixty thousand entries of correspondence and documents essentially important to a complete history of the period of the Revolution.

Owing to the extraordinary facilities which have been everywhere granted him, he has had access to papers never before opened to historical students, by which the still secret details of England's political, military, and diplomatic relations affecting America prior to, during, and subsequent to the Revolution are revealed; and the full and most interesting story of the causes which led France to assist in the prosecution of the war is told from the French point of view. All showing the important part which our efforts to establish an independent government played in the political affairs of Europe, and that the pacification of the difficulties in which the principal European states were concerned at the time of the Revolution depended on the success of our cause. This phase of our history, as well as much that relates to England's attitude towards her colonies in America, remain unknown.

There appears to be no dissent from the general idea that the Government should possess the fullest collection of documents obtainable concerning our history. I will therefore confine myself to the subject of chief importance in Mr. Stevens's letter; that is to say, the new plan he submits as to the form in which the European archives he has discovered should be communicated.

His new plan involves the withdrawal of the proposition to furnish one transcript of the documents in question, and instead he proposes to prepare carefully edited and printed copies of the same. He has so far developed his scheme as to be able to suggest a series form into which the matter may be put, and as a specimen of the printed volume of a contemplated first series, to embrace the documents on the diplomatic negotiations for peace between the United States, England, and France, he submits a dummy-book, made up of several signatures of printed text, being repetitions of thirty-two pages of these documents, and references to other illustrative data, taken from the collection of transcripts, and from the indexes thereto, which he has made.

As the motives which have led Mr. Stevens to offer printed rather than written copies of the documents seemed to me to be insufficiently explained in his letter, I have obtained from him in the course of conversation a fuller exposition of them, which it appears to me proper to report.

I. In order to arrive at a knowledge of all historical material relative to America in the several record offices to which he has been freely admitted to search, he has found it necessary, in addition to the indexes, referred to by him, to prepare a variety of historical, biographical, and genealogical notes and other memoranda not likely again to be compiled; and to make references to other State papers and correspondence of contingent interest of which the scope of the projected work does not require taking copies. To preserve these memoranda and to utilize them for the advantage of those who will use the documents they annotate and explain, and that they may be properly arranged and classified; that the whole—papers and notes—may be indexed; that the copies may be indisputably verified by comparison with their originals and the exact version be permanently fixed by the surest means; that references may be made to copies already in print and to show their variations, if any, from the originals, and that he may have the great assistance and advice of European archivists in proof-reading and the improvement of the historical references, Mr. Stevens has found that the only means is to put the whole into type.

II. A State paper often exists in more than one form, and frequently in several collections. The original may be found, say, at London, while copies of it, perhaps in cipher, may be discovered at Paris and The Hague, having been sent thither by an embassador or a secret agent. Each copy was prepared for a special purpose, to accomplish a certain end; whether that end was or was not attained, the means by which its object was effected or the causes which prevented the expected results are often shown by memoranda and indorsements made upon it by the public ministers through whose hands it passed. Those memoranda and indorsements are of the same historical value as the paper itself and enlarge the value of it.

The manuscripts in Her Majesty's Public Record Office, in the British Museum, and in the Royal Institution; in the French Government offices, and at The Hague, cannot, under any circumstances, be removed from their respective depositories; hence the impossibility to bring all these documents together for examination and comparison. The labor and expense of transcribing every copy has been found to be much greater than the cost of putting into type the standard original, on the proofs of which the variations and annotations, which make all other copies distinctive, may be readily recorded.

The foregoing are the chief among many cogent reasons adduced by Mr. Stevens as having persuaded him to abandon the plan of supplying transcripts, and to put the compilation into type.

It is clearly to be observed that Mr. Stevens does not propose merely to furnish copies of papers, nor copies of such as could be found by an ordinarily diligent seeker in the European archives, but an edited compilation of those which have revealed themselves to him in an exhaustive search, extended over many years.

Animated to this search by a peculiar interest in the development of the unwritten *history of* his country, he has pursued it with all the aids which have sprung from

y relations with the directors and custodians of the public offices, by whose nce and co-operation he has been enabled to make original investigations; ıe advantage, also, of long residence in the neighborhood of the institutions the archives are preserved, and of a staff of intelligent clerks trained by him work of indexing and of copying the documents and information discovered. ɔears to have proceeded on the plan of first acquainting himself with the pernconcerned in the transaction of public affairs of that time, of tracing the history ·official papers and of gaining access to them with the privilege of copying all bear upon the United States.

a careful examination of the methods of work employed by Mr. Stevens, which very willingly and frankly exposed to me; having had an opportunity to inɔecimens of his indexes and of his transcripts, and having studied the printed ubmitted by him, I have become convinced that, not only are his methods cal- to exhaust the resources of the foreign archives and to bring to light all the ɪnts which are in existence, but that the compilation when completed will be ɜt valuable contribution to the history of the United States for the period it es which has ever been made.

respect to the special interests of this Department, concerned in this measure, be said that the acquisition of a large number of unindexed and undigested ɪnts in manuscript would tend to greatly increase correspondence and the numɔersonal applications for information therefrom, to occupy the time and attenthose attached to the Bureau where the archives are preserved; the work of ing and indexing the present collection is seriously embarrassed by the presɪands. The possession of the documents in printed form, duly indexed, would us to gratify inquiries without delay and would promote the definite arrangend classification of the governmental collection.

ew of the necessity he has experienced, in the natural development of his unng, to put the matter acquired into type Mr. Stevens is enabled to submit sevimates as to expense, which affect the uses it will be possible to make of the ɪtion, from which I draw the following propositions:

› can supply the Department with one copy of the edited and printed docu-

› can supply any number of copies of the same.

› is willing to cast the type in plates, and having been paid for all the labor ɔd up to that point to supply therefrom whatever number of copies may be re-

› is willing to sell to the Government the stereotype plates, including all his ɔo the work as compiler and editor, from which copies may be printed wherever ɔartment may direct.

ɪe value of the printed copy to the Department, I have already remarked; any ɔhe other propositions may become the basis of a plan for the publication of the f authorized by Congress.

ı instance of the efforts which have been made by the Department to obtain terial Mr. Stevens proposes to provide, I subjoin copies of the correspondence n the Department and our minister at London in 1881, as to the British archives. stand that an application of similar purport was made by Mr. Evarts to the r at Paris, respecting the French archives.

ıs connection I should say that in consequence of Mr. Lowell's suggestion in ɔatch of April 1, 1881, being directed to execute certain commissions in Europe Department, I was instructed to make an examination in the record office at ı and to indicate the papers on the peace negotiations of 1783, preserved therein, ry to complete our archives. Five months were allowed me for all the duties hich I was charged, and after surveying the resources of that office it became to me that a year or more would be required to accomplish the task, and I luctantly abandoned it.

respectfully submitted.

THEODORE F. DWIGHT,
Chief of Bureau of Rolls and Library.

FREDERICK T. FRELINGHUYSEN,
Secretary of State.

ɔined are copies of: (1.) Despatch, Mr. Evarts to Mr. Lowell, March 1, 1881. spatch, Mr. Lowell to Mr. Blaine, April 1, 1881, with enclosures. Mr. Lowell Granville, March 16, 1881, and Lord Granville to Mr. Lowell, March 26, 1881.

[Dispatch (No. 119), Mr. Evarts to Mr. Lowell.]

DEPARTMENT OF STATE,
Washington, March 1, 1881.

In view of the preparations making in this country for celebrating the one dth anniversary of peace and the recognition of American Independence, the nt deems the *present a suitable time* to begin the work of obtaining, so far as

may be practicable, complete copies of all the correspondence in the archives of foreign governments, in any way bearing on the peace negotiations of 1783, in order that the same may be made available for use for historical purposes.

I have, therefore, to request you to bring the subject to the attention of Her Majesty's Government, and to ask for permission to cause copies to be made of such unpublished papers and documents as may exist in the British archives relating to the peace negotiations in question, as Her Majesty's Government may deem it proper to submit to the inspection of your legation for that purpose.

In addition to making this formal request of the British Government, I will thank you to take measures to obtain such information as may be attainable, as to documents relating to this subject, which may exist in the manuscript collections of families, similar to the Lansdowne House manuscripts and the Shelburne manuscripts, with a view of ultimately obtaining copies of such papers therein as may be of value.

I am, sir, &c.,

WILLIAM M. EVARTS.

JAMES RUSSELL LOWELL, Esq., *&c.*

[Despatch (No. 150), Mr. Lowell to Mr. Blaine.]

LEGATION OF THE UNITED STATES,
London, April 1, 1881.

SIR: Referring to Mr. Evarts's No. 119, of the 1st ultimo, I have the honor to inclose a copy of my note to Lord Granville requesting to be supplied with copies of unpublished documents bearing upon the peace negotiations of 1783, and of his lordship's reply, which arrived this morning.

As it will be necessary, in order to avail ourselves of the permission accorded, that some gentleman deputed by me should attend at the public record office to examine the papers in question, it is important that an expert should be appointed who has competent knowledge of the subject, and who could make a proper selection from the unpublished papers. I respectfully suggest that a duly qualified person should be sent from America by the Department of State for this purpose.

I have the honor to be, &c.,

J. R. LOWELL.

Enclosures: 1 Mr. Lowell to Lord Granville, March 16, 1881; 2 Lord Granville to Mr. Lowell, March 26, 1881.

LEGATION OF THE UNITED STATES,
London, March 16, 1881.

MY LORD: I have the honor to acquaint you that I have this day received a dispatch from Mr. Evarts, dated on the 1st instant, in which he states that the President, in view of the preparations making in America for celebrating the one hundredth anniversary of peace and the recognition of American Independence, deems the present a suitable time to begin the work of obtaining, so far as may be practicable, complete copies of all the correspondence in the archives of foreign Governments in any way bearing on the peace negotiations of 1783, in order that the same may be made available for use for historical purposes.

I have therefore been instructed to bring the subject to the attention of Her Majesty's Government, and I have the honor to ask for permission to cause copies to be made of such unpublished papers and documents as may exist in the British archives relating to the peace negotiations in question as Her Majesty's Government may deem it proper to submit to the inspection of this legation for that purpose.

I have the honor to be, &c.,

J. R. LOWELL.

FOREIGN OFFICE, *March* 26, 1881.

SIR: I have the honor to acknowledge the receipt of your letter of the 16th instant, requesting to be supplied, for historical purposes, with copies of any unpublished documents which may exist in the British archives bearing upon the peace negotiations of 1783; and I have much pleasure in informing you that the master of the rolls has been requested to give every facility to any gentleman whom you may be pleased to depute to attend at the public record office for the purpose of examining and making copies of any papers which he may select from the foreign correspondence of that period, subject to the usual restrictions.

I have the honor to be, &c.,

GRANVILLE.

JAMES RUSSELL LOWELL, Esq., *&c.*, *&c.*, *&c.*

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 85.

REPORT

OF THE

NATIONAL ACADEMY OF SCIENCES

FOR

THE YEAR 1883.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1884.

LETTER OF TRANSMITTAL.

NATIONAL ACADEMY OF SCIENCES,
Washington, D. C., January 10, 1884.

SIR: In conformity with the requirements of the act of incorporation, approved March 3, 1883, I have the honor to submit herewith a report of the operations of the National Academy of Sciences during the past year.

Very respectfully, your obedient servant,

O. C. MARSH,
President of the National Academy of Sciences.

To the PRESIDENT OF THE SENATE.

REPORT

OF

THE NATIONAL ACADEMY OF SCIENCES.

The National Academy of Sciences was established by act of Congress, in March, 1863, with power to frame its own constitution, select its own members, and provide in other respects for its continuance and successful operation.

The object of the Academy is to advance science, and especially to investigate, examine, experiment, and report on any subject of science or art whenever called upon by any department of the Government.

The Academy contains, at present, about one hundred members, and these have all been selected for their original researches in science. They represent within their ranks nearly every department of knowledge, and their services, in accordance with the charter of the Academy, are always at the disposal of the Government, without compensation.

SESSIONS OF THE NATIONAL ACADEMY.

During the past year the Academy has held three sessions. The first was the regular annual session, held in Washington, April 17 to 20, 1883; the second was a scientific session, in New Haven, Conn., November 13 to 16, 1883; and the third was a special session, in New Haven, November 14, 1883.

STATED SESSION.

HELD IN WASHINGTON CITY, APRIL 17 TO 20, 1883.

The Washington session was held in the National Museum, the vice-president, Prof. O. C. Marsh, presiding.

In the absence of the home secretary, Mr. Newcomb, Mr. Asaph Hall was elected secretary *pro tem.*

The following members were present during the session:

Abbe.	Ferrel.	Langley.	Rowland.
Abbot.	Gibbs.	Marsh.	Schott.
Agassiz.	Gill.	Meigs.	Scudder.
Baird.	Hall.	Mitchell.	Silliman.
Barker.	Hayden.	Peirce.	Trowbridge, J.
Brewer.	Hilgard, J. E.	Peters.	Trumbull.
Coffin.	Hill.	Powell.	Wright.
Cooke.	Humphreys.	Pumpelly.	Young.
Cope.	Hunt.	Remsen.	

Prof. Otto von Struve, astronomer royal of Russia, and his son, Dr. Hermann von Struve, were invited to attend the meeting and present papers.

At this session the following papers were read and discussed:

1. LE CONTE, JOSEPH.—On the Genesis of Metalliferous Veins. Read by Mr. Hunt.
2. REMSEN, IRA.—On the Nascent State of Oxygen. Discussed by Mr. Hunt.
3. LOOMIS, ELIAS.—On Barometric Gradients. Read by Mr. Abbe. Discussed by Messrs. Ferrel, Abbe, and Coffin.
4. COPE, E. D.—On the Structure of the Skull in the Hadrosauridæ. Discussed by Mr. Marsh.
5. HILL, G. W.—Determination of the Inequalities of the Moon's Motion which are produced by the Figure of the Earth. A supplement to Delauney's "Theorie du Mouvement de la Lune."
6. HUNT, T. STERRY.—On the Decay of Rocks geologically considered.
7. MITCHELL, S. WEIR, *and* REICHERT, E. T.—On the Composition of the Venom of Serpents. Discussed by Messrs. Barker, Remsen, and Gibbs.
8. FERREL, W.—Maxima and Minima Tide Predicting Machine. (Exhibition of the machine.)
9. REMSEN, IRA.—On Changes in the Properties of Atoms and Atomic Groups, caused by change in position in the Molecule.
10. LANGLEY, S. P.—On the Measurement of Wave Lengths of Heat. Discussed by Messrs. Rowland and Young.
11. LANGLEY, S. P.—On the Spectrum of an Argand Gas-Burner. Discussed by Messrs. Barker, Gill, Abbot, and Rowland.
12. BARKER, GEO. F.—Efficiency of Storage Batteries. Discussed by Mr. Bell.
13. STRUVE, OTTO VON.—(By invitation of the Academy.) On the great Object Glass made by Alvan Clark & Sons for the Pulkowa Observatory. Discussed by Messrs. Hall, Marsh, and Peters.
14. PETERS, C. H. F.—Photographs of the Great Comet of 1882. Discussed by Mr. Hall.
15. WRIGHT, A. W.—Some Experiments upon a Method of forming a Visible Image of the Solar Corona.
16. WRIGHT, A. W.—On the Phosphorescence of Sulphate of Quinine. Discussed by Messrs. Hall and Barker.
17. GIBBS, WOLCOTT.—Further generalizations regarding Complex Inorganic Acids. Read by Mr. Barker.

ELECTIONS.

Prof. O. C. Marsh, vice-president, was elected president to fill the vacancy caused by the death of President William B. Rogers.

Prof. Simon Newcomb, home secretary, was elected vice-president.

Prof. Asaph Hall, secretary *pro tem.*, was elected home secretary.

The following members were selected for the council of the ensuing year: Messrs. S. F. Baird, W. Gibbs, J. E. Hilgard, M. C. Meigs, F. Rogers, C. A. Young.

NEW MEMBERS.

The following new members were elected: Messrs. A. Graham Bell, John S. Billings, Henry B. Hill, Grove K. Gilbert, Charles L. Jackson.

FOREIGN ASSOCIATES.

The following gentlemen were elected foreign associates: Messrs. J. C. *Adams*, Arthur Auwers, M. P. E. Berthelot, J. L. F. Bertrand, J. B.

J. D. Boussingault, Arthur Cayley, M. E. Chevreul, Rudolph Clausius, Alphonso De Candolle, J. B. Dumas, Baron H. von. Helmholtz, Sir J. D. Hooker, T. H. Huxley, G. R. Kirchoff, Albert von Kölliker, Theodore von Oppolzer, Louis Pasteur, F. von Richthofen, G. G. Stokes, Otto von Struve, J. J. Sylvester, Sir William Thomson, Rudolph von Virchow, Adolphe Würtz.

TREASURER'S REPORT.

The treasurer presented the following report, which had been examined by the auditing committee, Messrs. Schott and Abbe, and approved:

1. *General account, April* 18, 1882, *to April* 16, 1883.

RECEIPTS.

Cash balance from last year	$340 58
Dues collected from members	530 00
Interest on District of Columbia 3.65 bond	36 50
Total assets	907 08

EXPENDITURES.

Stationery, printing, and postage	$157 11	
Copying	30 00	
Expenses of April and November meetings	258 99	
Rent and care of library room	121 00	
Expenses of committee on sorghum	109 31	
		676 41
Cash balance on hand April 16, 1883		230 67
Dues from members		30 00
District of Columbia 3.65 bond		1,000 00
Total assets		1,260 67

2. *The Bache trust fund.*

RECEIPTS.

Cash balance from last year, including $43.18 of uninvested capital	$3,344 70
Income receipts during year	2,306 85
Drawback of special assessments on Washington House	36 62
$9,850 United States loan, 3½ per cent., called and redeemed	9,850 00
Total	15,538 17

EXPENDITURES.

Appropriation by directors of Bache fund	$1,200 00	
Taxes on Missouri land	18 65	
Cost of $9,900 United States loan, 4½ per cent., of which $59.10 is accrued interest	11,236 50	
Cost of $1,500 District of Columbia loan, 3.65 per cent., of which $22.75 is accrued interest	1,668 75	
		14,123 90
Balance of income fund, cash		1,414 27
Add District of Columbia loan, 3.65 per cent		4,500 00
		5,914 27

The changes of investments during the year are as follows:

United States loan, 3½ per cent., called and redeemed	$9,850 00
United States loan, 4½ per cent., purchased	9,900 00
Increase, previously uninvested, $43.18; from income fund, $6.82	50 00
	19,800 00

3. *The Watson fund.*

RECEIPTS.

Cash from L. Gruner, executor of the estate of James C. Watson	$7,050 25
Dividend on stock of Michigan Mutual Life Insurance Company	768 75
Interest on $6,000 United States loan, 4½ per cent	139 50
	7,958 50

EXPENDITURES.

Appropriation by Board of Trustees for total solar eclipse, May 6, 1883	$300 00	
Cost of $6,209 United States loan, 4½ per cent., of which $23.25 is accured interest	7,013 75	
		$7,313 75
Balance		644 75

INVESTMENTS.

United States loan, 4½ per cent	$6,200 00
One hundred and thirty-four shares of capital stock of Michigan Mutual Life Insurance Company, received from L. Gruner, executor, par	6,700 00
Total	12,900 00

J. H. C. COFFIN,
Treasurer.

The following report of the committee to examine securities held by the Academy was read and approved:

WASHINGTON, D. C., *April* 11, 1883.

The committee, Messrs. Meigs and Gill, appointed at the April session, 1882, of the National Academy of Sciences to examine securities in the hands of the treasurer, report that they have examined said securities, and find they are as follows:

1. *Bache trust fund.*

United States loan, 4½ per cent	$42,100
United States loan, 4 per cent	3,850
City of Davenport loan, 6 per cent., coupon	1,000
City of Philadelphia loan, 6 per cent	600
	47,550

Also a deed for 160 acres of Missouri lands.

Also an agreement with the Pennsylvania Company for the insurance on lives and granting annuities as to the final disposition of the Joseph Henry fund of $40,000.

2. *Income of the Bache fund.*

District of Columbia 3.65 per cent. ($500 of which are coupon)	$4,500

3. *General fund.*

District of Columbia 3.65 per cent	1,000

4. *Watson trust fund.*

United States loan, 4½ per cent	$6,200
Certificate for 134 shares of capital stock of the Michigan Mutual Life Insurance Company, par	6,700
	12,900

Mrs. James C. Watson claimed, and was allowed, under the law of Wisconsin, one-third of the estate of her late husband in lieu of the bequests made her.

THE HENRY DRAPER MEDAL.

The president announced that Mrs. Henry Draper, widow of Dr. Henry Draper, late an honored member of the Academy, had presented to the National Academy of Sciences a fund of $6,000 for the establishment of a gold medal to be awarded every two years to the individual in this or any country who makes the most important discovery in astronomical physics, the value of said medal to be $200, and the fund, in case the medal should not be awarded, to be applied by the Academy to investigations in the same department of science.

DEATH OF MEMBERS.

The president announced the death of a member of the Academy, Dr. Henry Draper, who died in New York, November 20, 1882.

Mr. G. F. Barker was appointed to prepare an obituary memoir.

RESOLUTIONS.

The following resolutions from the council were adopted:

It was resolved that the assessment for the ensuing year be $5.

Resolved, That the secretary be directed to acknowledge, with thanks, the invitation extended to the Academy by the Royal Society of Canada to send delegates to the meeting to be held at Ottawa, May 22, 1883.

The president appointed Mr. Hunt to represent the National Academy of Sciences at said meeting.

The treasurer, Mr. Coffin, presented the following resolution in regard to the bequests of the late James C. Watson, which was adopted:

Resolved, That the National Academy of Sciences accepts the bequests of the late James C. Watson for the trust and purpose expressed in his will.

Resolved, That the Academy approves of the appropriation made by the Board of Trustees of $500, or as much of the same as may be necessary, to aid in the observation of the total solar eclipse on May 6, 1883.

Mr. Coffin moved that the deed of Mrs. Henry Draper be entered at length in the minutes of the meeting. The motion was adopted.

Resolved, That the acknowledgments of the National Academy of Sciences are due to the honorable Secretary of the Navy, the Chief of the Bureau of Navigation, and the Superintendent of the Naval Observatory for the interest they have manifested in the expedition for observing the total eclipse of the sun in May next, organized under the direction of a committee of the Academy, and for the important aid and facilities afforded by the Navy Department to promote and secure its success.

The following resolution was recommended by the council and adopted:

Resolved, That a permanent committee of five be appointed to consider the subject of the bestowal of the Henry Draper medal, and to recommend to the Academy, from time to time, such persons as they may consider deserving of the medal, with the ground of their recommendation.

Mr. Pumpelly moved that the committee be appointed by the president.

The motion was adopted, and the following members were appointed: Messrs. Barker, W. Gibbs, Newcomb, Wright, Young.

Mr. Abbe moved that Mr. Gill be reimbursed for expenses incurred in the preparation of the list of papers and publications of the Academy at the rate of twelve cents per hundred words. The motion was adopted.

Mr. Gill suggested that it would be well to have an account of what the Academy had done through the expenditures of its funds, and offered the following resolution:

Resolved, That the treasurer and those interested in the expenditures of moneys of the Academy should make a report of what had been done in the past twenty years.

The resolution was referred to the council with power.

The president appointed Mr. Meigs to fill the place made vacant by the election of Mr. Newcomb in the committee to represent the Academy before Congress.

The president also appointed the following committee on printing: Messrs. Baird, Coffin, and Newcomb.

REPORTS OF COMMITTEES.

Mr. Gill, who was appointed to prepare a complete list of all the publications of the Academy, presented a list of some 750 papers and publications, and moved that the home secretary be requested to co-operate in this matter, and furnish, in addition, the reports made by committees of the Academy to various Departments of the Government for incorporation with the said list. The motion was adopted.

The chairman of the committee on the election of foreign associates, Mr. Agassiz, presented twenty-five nominations to be voted on, and explained the manner in which they had been prepared.

The committees on alcohol and sorghum sugar, having made their reports, were discharged.

The Academy adjourned April 20, 1883.

SCIENTIFIC SESSION.

HELD IN NEW HAVEN, CONN., NOVEMBER 13 TO 16, 1883.

A scientific session, for the reading of papers only, having been called by the council, as announced at the April session, the Academy convened at Yale College, New Haven, Conn., on November 13, 1883. The president, Prof. O. C. Marsh, presided.

The following members were present during the session:

Barker.	Gibbs, W.	Morse.	Rowland.
Bell.	Hall, A.	Newberry.	Scudder.
Brewer.	Hall, J.	Newcomb.	Silliman.
Brush.	Hunt.	Newton, H. A.	Trowbridge, W. P.
Coffin.	Johnson.	Packard.	Verrill.
Cooke.	Langley.	Pickering.	Walker.
Dana.	Loomis.	Powell.	Wright.
Gibbs, J. W.	Marsh.	Pumpelly.	Young.

The following gentlemen were invited to attend the meetings, and to take part in the scientific proceedings: Prof. W. D. Whitney, Prof. E. S. Holden, Dr. W. L. Elkin, Prof. Lewis Boss, Dr. C. S. Hastings, Mr. R. H. Chittenden, Dr. Carl Barus, Dr. William Hallock, Major McFarland, Corps of Engineers, U. S. A., and Mr. O. T. Sherman.

The following papers were read and discussed:

1. BELL, A. GRAHAM.—Upon the formation of a Deaf Variety of the Human Race. Discussed by Messrs. Brewer, Bell, Powell, Scudder, and Newcomb.
2. HALL, A.—Notes on the Mass of Saturn. Discussed by Messrs. Newcomb, A. Hall, Young, Coffin, and Pickering.
3. HUNT, T. STERRY.—The Animikie Rocks of Lake Superior. Discussed by Messrs. Powell and Hunt.
4. CHITTENDEN, R. H.—(By invitation of the Academy.) On some new primary Cleavage Forms of Albuminous Matter.
5. YOUNG, C. A., *and* COFFIN, J. H. C., *and* (by invitation) HOLDEN, E. S., *and* HASTINGS, C. S.—On the Solar Eclipse of May 6, 1883. Reports. Discussed by Messrs. Young, Rowland, Newcomb, Hastings, Langley, and Wright.
6. NEWCOMB, S.—On the use of the word "Light" in Physics. Discussed by Messrs. Young, Langley, Newcomb, Pickering, and Bell.
7. BREWER, W. H.—On the Subsidence of Particles in Liquids. Discussed by Messrs. Rowland, Silliman, Brewer, Hunt, Newberry, J. W. Gibbs, Powell, and Johnson.
8. ROWLAND, H. A.—On a new Photograph of the Solar Spectrum. Discussed by Mr. W. Gibbs.
9. LANGLEY, S. P.—Atmospheric Absorption. Discussed by Messrs. Pickering, Young, and Langley.
10. NEWCOMB, S.—On the Theory of Errors of Observation and Probable Results. Discussed by Messrs. Langley, Newcomb, Newton, Young, and J. W. Gibbs.
11. GIBBS, WOLCOTT.—Preliminary notice of Phospho-vanadates, Arsenio-vanadates, and Antimonio-vanadates.
12. GIBBS, WOLCOTT.—On the probable existence of new Acids of Phosphorus.

13. HALL, JAMES.—Note upon the Physical Aspects of the higher members of the Chemung Group and the development and distribution of the Fossil Genera, Ptychopteria and Leptodesma, preceded by a review of the Pectenidæ and Aviculidæ of the Devonian System. Discussed by Messrs. Newberry and Marsh.
14. SILLIMAN, B.—Notes on the Mineralogy and Lithology of the Bodie Mining District of California.
15. NEWBERRY, J. S.—On the ancient glaciation of North America.
16. POWELL, J. W.—Marriage Institutions in Tribal Society.
17. SHERMAN, O. T.—(By invitation of the Academy.) Personality in the measures of Venus's diameter as derived during Transit across the Sun.
18. LOOMIS, ELIAS.—The reduction of Barometric Observations to Sea-level. Discussed by Mr. Brewer.
19. DANA, J. D.—On the Stratified Drift or Terrace Formation of the New Haven Region, including its Kettle Holes and deserted River Channels. Discussed by Mr. Newberry.
20. MARSH, O. C.—On the Affinities of the Dinosaurian Reptiles.

DEATH OF MEMBERS.

The president announced the death of the following members, who have died since the April meeting: Prof. Stephen Alexander, Prof. William A. Norton, Prof. J. Lawrence Smith, Dr. John Le Conte.

The following members were appointed to prepare obituary memoirs:

Of Professor Alexander: Prof. C. A. Young.

Of Professor Norton: Prof. William P. Trowbridge.

Of Professor Smith: Prof. B. Silliman.

Of Dr. Le Conte: Mr. S. H. Scudder.

Since the November meeting General A. A. Humphreys has died at Washington, D. C., December 28, 1883.

DEATH OF FOREIGN ASSOCIATES.

Since the November meeting, news has been received of the death of Prof. Joachim Barrande, foreign associate, who died October 5, 1883, at Frohsdorf, Austria.

The scientific session closed November 16, 1883.

SPECIAL SESSION.

HELD IN NEW HAVEN, CONN., NOVEMBER 14, 1883.

A special session of the Academy having been called by the council, in accordance with section 1, Article III of the constitution, the Academy convened at Yale College, New Haven, Conn., November 14, 1883, the president, Prof. O. C. Marsh, presiding.

The president was authorized to include in his annual report to Congress, with the proceedings of the April meeting, the proceedings of the November meeting, the report of the committee on the solar eclipse of May 6, 1883, and the report of the committee on glucose.

RESOLUTIONS.

Upon recommendation of the council, the following resolutions were adopted:

Resolved, That the president include in his annual report to Congress an expression of the approval of the Academy of the efforts now being made to secure a system of uniform time, such a system being free from objection on scientific grounds, and certain to prove a public convenience.

Resolved, That the president communicate to the honorable Secretary of the Navy, and include in the annual report to Congress, an expression of the high appreciation of the Academy of the generous and efficient aid rendered by the Navy Department to science in the observation of the solar eclipse of May last, by placing a ship at the disposal of the observing party, and making all arrangements necessary to secure the success of the expedition.

Resolved, That the president request the honorable Secretary of the Navy to communicate to Captain Carpenter and the officers of the Hartford the thanks of the Academy for the courtesies extended by them to the eclipse party while on board the ship, and for the energy and personal interest with which they co-operated in the work.

Resolved, That the thanks of the National Academy of Sciences be tendered to the Governing Board of the Sheffield Scientific School for the excellent arrangements made for the accommodation of the Academy during the session.

The special session then adjourned.

Respectfully submitted.

O. C. MARSH,
President of the National Academy of Sciences.

APPENDICES.

APPENDIX A.

AN ACT to incorporate the National Academy of Sciences.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That Louis Agassiz, Massachusetts; J. H. Alexander, Maryland; S. Alexander, New Jersey; A. D. Bache, at large; F. B. Barnard, at large; J. G. Barnard, United States Army, Massachusetts; W. H. C. Bartlett, United States Military Academy, Missouri; U. A. Boyden, Massachusetts; Alexis Caswell, Rhode Island; William Chauvenet, Missouri; J. H. C. Coffin, United States Naval Academy, Maine; J. A. Dahlgren, United States Navy, Pennsylvania; J. D. Dana, Connecticut; Charles H. Davis, United States Navy, Massachusetts; George Engelmann, Saint Louis, Missouri; J. F. Frazer, Pennsylvania; Wolcott Gibbs, New York; J. M. Gilliss, United States Navy, District of Columbia; A. A. Gould, Massachusetts; B. A. Gould, Massachusetts; Asa Gray, Massachusetts; A. Guyot, New Jersey; James Hall, New York; Joseph Henry, at large; J. E. Hilgard, at large, Illinois; Edward Hitchcock, Massachusetts; J. S. Hubbard, United States Naval Observatory, Connecticut; A. A. Humphreys, United States Army, Pennsylvania; J. L. Le Conte, United States Army, Pennsylvania; J. Leidy, Pennsylvania; J. P. Lesley, Pennsylvania; M. F. Longstreth, Pennsylvania; D. H. Mahan, United States Military Academy, Virginia; J. S. Newberry, Ohio; H. A. Newton, Connecticut; Benjamin Peirce, Massachusetts; John Rodgers, United States Navy, Indiana; Fairman Rogers, Pennsylvania; R. E. Rogers, Pennsylvania; W. B. Rogers, Massachusetts; L. M. Rutherfurd, New York; Joseph Saxton, at large; Benjamin Silliman, Connecticut; Benjamin Silliman, junior, Connecticut; Theodore Strong, New Jersey; John Torrey, New York; J. G. Totten, United States Army, Connecticut; Joseph Winlock, United States Nautical Almanac, Kentucky; Jeffries Wyman, Massachusetts; J. D. Whitney, California, their associates and successors duly chosen, are hereby incorporated, constituted, and declared to be a body corporate, by the name of the National Academy of Sciences.

SECTION 2. *And be it further enacted*, That the National Academy of Sciences shall consist of not more than fifty ordinary members, and the said corporation hereby constituted shall have power to make its own organization, including its constitution, by-laws, and rules and regulations; to fill all vacancies created by death, resignation, or otherwise; to provide for the election of foreign and domestic members, the division

into classes, and all other matters needful or usual in such institutions, and to report the same to Congress.

SECTION 3. *And be it further enacted*, That the National Academy of Sciences shall hold an annual meeting at such place in the United States as may be designated, and the academy shall, whenever called upon by any Department of the Government, investigate, examine, experiment, and report upon any subject of science or art, the actual expense of such investigations, examinations, experiments, and reports to be paid from appropriations which may be made for the purpose, but the academy shall receive no compensation whatever for any services to the Government of the United States.

Approved, March 3, 1863.

AN ACT to amend the act to incorporate the National Academy of Sciences.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the act to incorporate the National Academy of Sciences, approved March three, eighteen hundred and sixty-three, be, and the same is hereby, so amended as to remove the limitation of the number of ordinary members of said academy as provided in said act.

Approved, July 14, 1870.

DEPARTMENT OF STATE, *June* 10, 1882.

True copies.

SEVELLON A. BROWN,
Chief Clerk.

APPENDIX B.

CONSTITUTION AND RULES OF THE NATIONAL ACADEMY OF SCIENCES.

As amended and adopted April 17, 1872, and further amended April 20, 1875, April 21, 1881, April 19, 1882, and April 18, 1883.

PREAMBLE.

Empowered by the act of incorporation enacted by Congress, and approved by the President of the United States, on the 3d day of March, A. D. 1863, and in conformity with the amendment to said act, approved July 14, 1870, the National Academy of Sciences adopt the following amended constitution and rules:

ARTICLE I.—OF MEMBERS.

SECTION 1. The Academy shall consist of members, honorary members, and foreign associates. Members must be citizens of the United States.

SEC. 2. Members who, from age or inability to attend the sessions of the Academy, wish to resign the duties of active membership may, at their own request, be transferred to the roll of honorary members by a vote of the Academy.

SEC. 3. The Academy may elect fifty foreign associates.

SEC. 4. Honorary members and foreign associates shall have the privilege of attending the meetings and of reading and communicating papers to the Academy, but shall take no part in its business, shall not be subject to its assessments, and shall be entitled to a copy of the publications of the Academy.

ARTICLE II.—OF THE OFFICERS.

SECTION 1. The officers of the Academy shall be a president, a vice-president, a foreign secretary, a home secretary, and a treasurer, all of whom shall be elected for a term of six years, by a majority of votes present at the first stated session after the expiration of the current terms, provided that existing officers retain their places until their successors are elected. In case of a vacancy, the election for six years shall be held in the same manner at the session when such vacancy occurs, or at the next stated session thereafter, as the Academy may direct. A vacancy in the office of treasurer or home secretary may, however, be filled by appointment of the president of the Academy until the next stated session of the Academy.

SEC. 2. The officers of the Academy, together with six members, to be elected by the Academy at the first stated session in each year, shall constitute a council for the transaction of such business as may be assigned to them by the constitution or the Academy.

SEC. 3. The president of the Academy, or, in case of his absence or inability to act, the vice-president shall preside at the meetings of the Academy and of the council; shall name all committees, except such as are otherwise especially provided for; shall refer investigations required by the Government of the United States to members specially conversant with the subjects, and report thereon to the Academy at its session next ensuing; and, with the council, shall direct the general business of the Academy.

It shall be competent for the president, in special cases, to call in the aid, upon committees, of experts, or men of special attainments, not members of the Academy.

SEC. 4. The foreign and home secretaries shall conduct the correspondence proper to their respective departments, advising with the president and council in cases of doubt, and reporting their action to the Academy at one of the stated sessions in each year.

It shall be the duty of the home secretary to give notice to the members of the place and time of all meetings, of all nominations for membership, and of all proposed amendments to the constitution.

The minutes of each session shall be duly engrossed before the next stated session, under the direction of the home secretary.

SEC. 5. The treasurer shall attend to all receipts and disbursements of the Academy, giving such bond and furnishing such vouchers as the council may require. He shall collect all dues from members, and keep a set of books showing a full account of receipts and disbursements. He shall present a general report at the April session. He shall be the custodian of the corporate seal of the Academy.

ARTICLE III.—OF THE MEETINGS.

SECTION 1. The Academy shall hold one stated session in each year, in the city of Washington, on the third Tuesday in April, and another may be held at such place and time as the council shall determine.

Special sessions of the Academy may be called by order of eight members of the council, at such place and time as may be designated in the call.

Scientific sessions of the Academy may be held at times and places to be designated by a majority of the council.

SEC. 2. The names of the members present at each daily meeting shall be recorded in the minutes; and the members present at any meeting shall constitute a quorum for the transaction of business.

SEC. 3. Scientific meetings of the Academy, unless otherwise ordered by a majority of the members present, shall be open to the public; those for the transaction of business closed.

SEC. 4. The stated meetings of the council shall be held during the stated or special sessions of the Academy. Special meetings may be convened at the call of the president and two members of the council, or of four members of the council.

SEC. 5. No member who has not paid his dues shall take part in the business of the Academy.

ARTICLE IV.—OF ELECTIONS AND RESIGNATIONS.

SECTION 1. All elections shall be by ballot, and each election shall be held separately, unless otherwise ordered by this constitution.

SEC. 2. The time for holding an election for officers shall be fixed by the Academy at least one day before the election is held.

SEC. 3. The six additional members of the council shall be elected on any day after the first of the first stated session in each year, by each voter inscribing six names on his ballot, and those six who have received more votes than any others shall be declared elected. If two or more names have received the lowest number of votes that would elect, additional balloting shall be had for as many members as remain each time to be elected until the number is full.

The term of the members so elected shall commence at the close of the session at which they are elected, and continue until the close of the first stated session in the next year.

SEC. 4. Nominations of members [and foreign associates]* may be made in writing, signed by any five members of the Academy at any stated session, to be voted on at the next stated session held in Washington, and each nomination shall, at the time of election, be accompanied by a written list of the original works of the nominee.

SEC. 5. Elections for membership shall be held in the following manner: Each member may inscribe on a ballot not more than five names of nominees selected from the list. Absent members may send such ballots to the home secretary. From the seven names receiving the highest number of votes in this preference ballot, the members present may proceed to elect new members in the following manner: At each ballot, each member present may vote for not exceeding three persons, and the person receiving the highest number of votes shall be declared elected, provided that he received two-thirds of the votes cast, and that his name appear on not less than twenty ballots; and provided further, that the number of members of the Academy be not already one hundred or over, in which case, to be declared to be elected, he must receive four-fifths of the votes cast, and his name must appear on at least twenty-five ballots.

Should several candidates have the same minimum number of votes on the preference list, the requisite number for completing the list shall be selected from them by a two-thirds vote of the members present.

* Pending amendment, strike out the words in brackets.

Election of members shall be held only at the regular stated session of each year, held in Washington, and not more than five members shall be elected at that session.

Before, and during elections, a discussion of the merits of nominees will be in order.

The election of members may be suspended at any time by a majority vote of the members present.

SEC. 6. Every member elect shall accept his membership, personally or in writing, before the close of the next stated session after the date of his election. Otherwise, on proof that the secretary has formally notified him of his election, his name shall not be entered on the roll of members.

SEC. 7. Foreign associates may be nominated by a committee of five members to be appointed for that purpose by the president, and elected at any stated session by a two-thirds vote of the members present. The election shall be had by each member indicating on a ballot those names for which he votes, and those nominees whose names appear on two-thirds of the ballots shall be declared elected.

SEC. 8. A diploma, with the corporate seal of the Academy and the signatures of the officers, shall be sent by the appropriate secretary to each member on his acceptance of his membership, and to foreign associates on their election.

SEC. 9. Resignations shall be addressed to the president, and acted on by the Academy.

ARTICLE V.—OF SCIENTIFIC COMMUNICATIONS, PUBLICATIONS, AND REPORTS.

SECTION. 1. Communications on scientific subjects shall be read at scientific meetings of the Academy, and papers by any member may be read by the author or by any other member, notice of the same having been previously given to the secretary.

SEC. 2. Any member of the Academy may read a paper from a person who is not a member; and shall not be considered responsible for the facts or opinions expressed by the author, but shall be held responsible for the propriety of the paper.

Persons who are not members may read papers on invitation of the president with the advice of the council.

SEC. 3. The Academy may provide for the publication, under the direction of the council, of proceedings, memoirs, and reports.

SEC. 4. Propositions for investigations or reports by the Academy shall be submitted to the council for approval; except those requested by the Government of the United States, which shall be acted on by the president, who will, in such cases, report their results to the Government, as soon as obtained, and to the Academy at its next following stated session.

SEC. 5. The advice of the Academy shall be, at all times, at the disposition of the Government, upon any matter of science or art within its scope.

SEC. 6. An annual report to be presented to Congress shall be prepared by the president, and before its presentation submitted by him, first to the council, and afterwards to the Academy at one of the stated sessions.

SEC. 7. Medals and prizes may be established, and the means of bestowing them accepted by the Academy, upon the recommendation of the council, by whom all the necessary arrangements for their establishment and award shall be made.

Bequests and trusts having for their object the advancement of science may also be accepted and administered by the Academy.

ARTICLE VI.—OF THE PROPERTY OF THE ACADEMY.

SECTION 1. All investments shall be made by the treasurer, in the corporate name of the Academy, in stocks of the United States.

SEC. 2. No contract shall be binding upon the Academy which has not been first approved by the council.

SEC. 3. The assessments required for the support of the Academy shall be fixed by the Academy on the recommendation of the council.

ARTICLE VII.—OF ADDITIONS AND AMENDMENTS.

Additions and amendments to the constitution shall be made only at a stated session of the Academy. Notice of a proposition for such a change must be given at a stated session, and shall be referred to the council, which may amend the proposition, and shall report thereon to the Academy at the same session. Its report shall be considered by the Academy in committee of the whole for amendment.

The proposition as amended, if adopted in committee of the whole, shall be voted on at the next stated session, and if it receive two-thirds of the votes cast, it shall be declared adopted.

Absent members may send their votes on pending changes in the constitution to the home secretary in writing, and such votes shall be counted as if the member were present.

RULES.

I. In the absence of any officer, a member shall be chosen to perform his duties temporarily, by a pluralty of *viva voce* votes, upon open nomination.

II. The accounts of the treasurer shall be referred to an auditing committee of three members, to be appointed by the president at the meeting at which the accounts are presented; which committee shall report before the close of that session, and shall then be discharged.

The bonds, securities, and other property owned or held in trust by the Academy shall be inspected and verified by a committee to be

annually appointed by the president. The report of this committee shall be presented to the Academy at its first stated session in each year, and referred with the accounts to the auditing committee.

III. A committee of arrangements, consisting of five members, shall be appointed by the president for each stated session of the Academy. This committee shall meet not less than two weeks previous to each session. It shall be in session during the meetings to make arrangements for the reception of the members; to arrange the business of each day; to receive the titles of papers, reports, &c.; and to arrange the order of reading, and in general, to attend to all business and scientific arrangements.

IV. At the meetings the order of business shall be a follows:

1. Chair taken by the president, or, in his absence, by the vice-president.
2. Roll of members called by home secretary.
3. Minutes of the preceding meeting read and approved.
4. Stated business.
5. Reports of president, secretaries, treasurer, and committees.
6. Business from council.
7. Other business.
8. Rough minutes read for correction.

V. The rules of order of the Academy shall be those of the Senate of the United States, unless suspended by unanimous consent.

VI. Unless otherwise ordered by the Academy, the scientific meetings shall be convened at noon.

VII. The death of members shall be announced by the president on the last day of any session, when a member shall be selected by the president to furnish a biographical notice of the deceased at the next stated session. If such notice be not then furnished, another member may be selected by the president, in place of the first, and so on until the duty is performed.

VIII. All discussions as to the claims and qualifications of nominees, at meetings of the Academy, will be held strictly confidential, and remarks and criticisms then made may be communicated to no person who was not a member of the Academy at the time of the discussion.

IX. The secretaries will receive memoirs at any time, and report the date of their reception at the next session. But no memoir shall be published unless it has been read before the Academy.

X. Memoirs shall date in the records of the Academy from the date of their presentation to the Academy, and the order of their presentation shall be that in which they were registered, unless changed by consent of the author.

XI. Papers from persons not members, read before the Academy, and intended for publication, shall be referred, at the meeting at which they are read, to a committee of members competent to judge whether the

paper is worthy of publication. Such committee shall report to the Academy as early as practicable, and not later than the next stated session.

XII. An annual of the Academy shall be prepared and published by the secretaries.

XIII. The printing of the Academy shall be under the charge of a committee of publication, to consist of the home secretary and four other members to be named by the president with the advice and consent of the council.

XIV. The annual report of the Academy may be accompanied by a memorial to Congress in regard to such investigations and other subjects as may be deemed advisable, recommending appropriations therefor when necessary.

XV. The proper secretary shall acknowledge all donations made to the Academy, and shall report them at the next stated session.

XVI. The books, apparatus, archives, and other collections of the Academy shall be deposited in some safe place in the city of Washington. A list of the articles so deposited shall be kept by the home secretary, who is authorized to employ a clerk to take charge of them.

XVII. A stamp corresponding to the corporate seal of the Academy shall be kept by the secretaries, who shall be responsible for the due marking of all books and other objects to which it is applicable.

Labels, or other proper marks of similar device, shall be placed upon objects not admitting of the stamp.

XVIII. On the first day of each stated session, immediately after calling the roll of members, a recording secretary shall be elected by a plurality of members present to assist the home secretary in keeping the records of the session.

XIX. It shall be the duty of the committee of arrangements to fix the length of time to be devoted to reading of all papers submitted, and to limit the time to be occupied in their discussion.

XX. Ballots for elections of members may be sent by sealing them up in a blank envelope, and inclosing this in another, across the back of which is written the name of the sender, and which is addressed to the home secretary; such envelopes will be opened only by the tellers.

XXI. Any rule of the Academy may be amended, suspended, or repealed on the written motion of any two members, signed by them and presented at a stated session of the Academy; provided the same shall be approved by a majority of the members present.

XXII. Nominations for membership should state the full name, residence, the official position, and the special scientific studies of the candidate. A form of nomination shall be prepared by the home secretary.

By a resolution adopted January 12, 1864, the president is, *ex officio*, a member of all government committees of the Academy.

APPENDIX C.

ORGANIZATION OF THE ACADEMY.—1883.

	Expiration of term
MARSH, O. C., *President*	April, 1889.
NEWCOMB, S., *Vice-President*	April, 1889.
AGASSIZ, ALEX., *Foreign Secretary*	April, 1886.
HALL, A., *Home Secretary*	April, 1889.
COFFIN, J. H. C., *Treasurer*	April, 1887.

ADDITIONAL MEMBERS OF COUNCIL, 1883–'84.

BAIRD, S. F.
GIBBS, W.
HILGARD, J. E.
MEIGS, M. C.
ROGERS, FAIRMAN.
YOUNG, C. A.

COMMITTEES OF THE ACADEMY.

On Ways and Means to Provide a Fund for the Academy.

ROGERS, FAIRMAN, *Chairman.*
CHANDLER, C. F.
MARSH, O. C.
AGASSIZ, ALEX.
SMITH, J. LAWRENCE.

On Weights, Measures, and Coinage.

BARNARD, F. A. P., *Chairman.*
GIBBS, WOLCOTT.
HILGARD, J. E.
MEIGS, M. C.
NEWCOMB, S.
NEWTON, H. A.
PEIRCE, C. S.
TROWBRIDGE, W. P.

On the Election of Foreign Associates.

AGASSIZ, ALEX., *Chairman.*
DANA, J. D.
GIBBS, W.
HALL, A.
NEWCOMB, S.

On Reserving Public Lands on and near Mount Whitney, California, for Scientific Purposes.

BREWER, W. H.
LANGLEY, S. P.
POWELL, J. W.

On Questions of Meteorological Science and its Applications.

FERRIS, W.
GIBBS, W.
LANGLEY, S. P.
LOOMIS, E.
NEWCOMB, S., *Chairman.*
NEWTON, H. A.
ROOD, O. N.
SCHOTT, C. A.
YOUNG, C. A.

To Report on the Triangulation to Connect the Atlantic and Pacific Coasts.

ABBOT, H. L., *Chairman.*
BARNARD, F. A. P.
MEIGS, M. C.
NEWBERRY, J. S.
NEWCOMB, S.
NEWTON, H. A.
POWELL, J. W.

To Co-operate with the National Board of Health.

MITCHELL, S. WEIR, Philadelphia, Pa.
ENGELMANN, GEORGE, Saint Louis, Mo.
SMITH, J. LAWRENCE, Louisville, Ky.
WOODWARD, J. J., Washington, D. C.
WALKER, F. A., Boston, Mass.
BARKER, GEORGE F., Philadelphia, Pa.
CHANDLER, CHARLES F., New York City.
GIBBS, WOLCOTT, Cambridge, Mass.

On the Investigation of Glucose for the Department of Internal Revenue.

BARKER, G. F., *Chairman.*
BREWER, W. H.
CHANDLER, C. F.
GIBBS, W.
REMSEN, I.

On Publication.

The HOME SECRETARY.
BAIRD, S. F.
COFFIN, J. H. C.
NEWCOMB, S.

On Publications of the Academy.

GILL, T.

On the Total Eclipse of May 6, 1883.

YOUNG, C. A., *Chairman.*
COFFIN, J. H. C.
HALL, A.
HILGARD, J. E.
LANGLEY, S. P.
PEIRCE, C. S.
And by invitation, ROCKWELL, C. H.

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ALLEN, J. ASAPH ..... *Cambridge, Mass.*	1876
AGASSIZ, ALEXANDER ..... *Cambridge, Mass.*	1866
BAIRD, SPENCER F ..... *Washington, D. C.*	1864
BARKER, GEORGE F ..... *Philadelphia, Pa.*	1876
BARNARD, FREDERICK A. P ..... *New York City.*	——
BARTLETT, WILLIAM H. C ..... 75 *Locust Hill Ave., Yonkers, N. Y.*	——
BELL, A. GRAHAM ..... *Washington, D. C.*	1883
BILLINGS, JOHN S., U. S. A ..... *Washington, D. C.*	1883
BREWER, WILLIAM H ..... *New Haven, Conn.*	1880
BROWN-SEQUARD, CHARLES E ..... *Paris, France.*	1868
BRUSH, GEORGE J ..... *New Haven, Conn.*	1868
CHANDLER, CHARLES F ..... *New York City.*	1874
COFFIN, JOHN H. C., U. S. N ..... *Washington, D. C.*	——
COOKE, JOSIAH P ..... *Cambridge, Mass.*	1872
COPE, EDWARD D ..... 2100 *Pine St., Philadelphia, Pa.*	1872
COUES, ELLIOTT ..... *Washington, D. C.*	1877
CRAFTS, JAMES M ..... *Boston, Mass.*	1872
DALTON, J. C ..... 43 *W. Forty-eighth St., New York City.*	1861
DANA, JAMES D ..... *New Haven, Conn.*	——
DAVIDSON, GEORGE ..... *San Francisco, Cal.*	1874
EADS, JAMES B ..... *Saint Louis, Mo.*	1872
FARLOW, W. G ..... *Cambridge, Mass.*	1879
FERREL, WILLIAM ..... *Washington, D. C.*	1868
GENTH, FREDERICK A ..... *W. Philadelphia, Pa.*	1872
GIBBS, JOSIAH WILLARD ..... *New Haven, Conn.*	1879
GIBBS, WOLCOTT ..... *Cambridge, Mass.*	——
GILBERT, GROVE K ..... *Washington, D. C.*	1883
GILL, THEODORE N ..... *Washington, D. C.*	1873
GOULD, BENJAMIN A ..... *Cordoba, Argentine Republic, S. A.*	——
GUYOT, ARNOLD ..... *Princeton, N. J.*	——
HALL, ASAPH, U. S. N ..... *Washington, D. C.*	1875
HALL, JAMES ..... *Albany, N. Y.*	——
HAYDEN, F. V ..... 1803 *Arch St., Philadelphia, Pa.*	1873
HILGARD, EUGENE W ..... *Oakland, Cal.*	1872
HILGARD, JULIUS E ..... *Washington, D. C.*	——
HILL, GEORGE W ..... *Washington, D. C.*	1874

		Date of election.
HILL, HENRY B	*Cambridge, Mass.*	1883
HUNT, T. STERRY	*Montreal, Canada.*	1873
HYATT, ALPHEUS	*Soc. of Nat. History, Boston, Mass.*	1875
JACKSON, CHARLES L	*Cambridge, Mass.*	1883
JOHNSON, SAMUEL W	*New Haven, Conn.*	1866
KING, CLARENCE	62 *Cedar St., New York.*	1876
LANGLEY, SAMUEL P	*Observatory, Alleghany, Pa.*	1876
LESLEY, J. PETER	1008 *Clinton St., Philadelphia, Pa.*	——
LOOMIS, ELIAS	*New Haven, Conn.*	1873
LE CONTE, JOHN	*Berkeley, Cal.*	1878
LE CONTE, JOSEPH	*Berkeley, Cal.*	1875
LESQUEREUX, LEO	302 *Fourth St., Columbus, Ohio.*	1874
LOVERING, JOSEPH	*Cambridge, Mass.*	1873
LYMAN, THEODORE	*Brookline, Mass.*	1872
MARSH, O. C	*New Haven, Conn.*	1874
MAYER, ALFRED M	*Hoboken, N. J.*	1872
MEIGS, MONTGOMERY C., U. S. A	*Washington, D. C.*	1865
MITCHELL, S. WEIR	1332 *Walnut St., Philadelphia, Pa.*	1865
MORSE, EDWARD S	*Salem, Mass.*	1876
MORTON, HENRY	*Hoboken, N. J.*	1874
NEWBERRY, J. S	*New York City.*	——
NEWCOMB, SIMON, U. S. N	*Washington, D. C.*	1869
NEWTON, H. A	*New Haven, Conn.*	——
NEWTON, JOHN, U. S. A	*Army Building, New York City.*	1876
OLIVER, JAMES E	*Ithaca, N. Y.*	1872
PACKARD, A. S., Jr	*Providence, R. I.*	1872
PEIRCE, CHARLES S	*U. S. C. Survey, Washington, D. C.*	1877
PETERS, C. H. F	*Clinton, N. Y.*	1876
PICKERING, EDWARD C	*Cambridge, Mass.*	1873
POWELL, JOHN W	*Washington, D. C.*	1880
PUMPELLY, RAPHAEL	*Gibbs Ave., Newport, R. I.*	1872
REMSEN, IRA	*Johns Hopkins University, Baltimore, Md.*	1882
ROGERS, FAIRMAN	202 *W. Rittenhouse Sq., Philadelphia, Pa.*	——
ROGERS, ROBERT E	1104 *Walnut St., Philadelphia, Pa.*	——
ROOD, OGDEN N	*New York City.*	1865
ROWLAND, HENRY A	*Johns Hopkins University, Baltimore, Md.*	1881
RUTHERFURD, LEWIS M	175 *Second Ave., New York City.*	——
SCHOTT, CHARLES A	*Washington, D. C.*	1872
SCUDDER, SAMUEL H	*Cambridge, Mass.*	1877
SELLERS, WILLIAM	1600 *Hamilton St., Philadelphia, Pa.*	1873
SILLIMAN, BENJAMIN	*New Haven, Conn.*	——
TROWBRIDGE, JOHN	*Cambridge, Mass.*	1878
TROWBRIDGE, WILLIAM P	*New York City.*	1872
TRUMBULL, J. H	*Hartford, Conn.*	1872
TUCKERMAN, EDWARD	*Amherst, Mass.*	1868
VERRILL, A. E	*New Haven, Conn.*	1872
WALKER, FRANCIS A	*Boston, Mass.*	1878
WOOD, HORATIO C	1925 *Chestnut St., Philadelphia, Pa.*	1879
WOODWARD, J. J., U. S. A	*Washington, D. C.*	1873
WORTHEN, A. H	*Springfield, Ill.*	1872
WRIGHT, ARTHUR W	*New Haven, Conn.*	1881
YOUNG, CHARLES A	*Princeton, N. J.*	1872

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DECEASED MEMBERS.

*AGASSIZ, LOUIS	Dec. 14, 1873
*ALEXANDER, J. H	Mar. 2, 1867
ALEXANDER, STEPHEN	June 25, 1883
*BACHE, ALEXANDER DALLAS	Feb. 14, 1867
BARNARD, J. G	May 14, 1882
*CASWELL, ALEXIS	Jan. 8, 1877
*CHAUVENET, WILLIAM	Dec. 13, 1870
*CLARK, HENRY JAMES	July 1, 1873
*COFFIN, JAMES H	Jan. 6, 1873
DAVIS, CHARLES H	Feb. 18, 1877
DRAPER, HENRY	Nov. 20, 1882
DRAPER, JOHN W	Jan. 4, 1882
*FRAZER, JOHN FRIES	Oct. 14, 1872
*GABB, WILLIAM M	May 30, 1878
*GILLISS, JAMES MELVILLE	Feb. 9, 1865
*GOULD, AUGUSTUS A	Sept. 15, 1866
*HADLEY, JAMES	Aug. 1, 1864
*HALDEMAN, S. S	Sept. 10, 1880
*HENRY, JOSEPH	May 13, 1878
*HITCHCOCK, EDWARD	Feb. 27, 1864
*HOLBROOK, J. E	Sept. 8, 1871
*HUBBARD, J. S	Aug. 16, 1863
HUMPHREYS, A. A., U. S. A	Dec. 28, 1883
*KIRTLAND, JARED P	Dec. 10, 1877
*LANE, J. HOMER	——, 1880
LE CONTE, JOHN	Nov. 15, 1883
*MAHAN, D. H	Sept. 16, 1871
MARSH, G. P	July 23, 1882
*MEEK, F. B	Dec. 21, 1877
MORGAN, LEWIS H	Dec. 14, 1881
NORTON, WILLIAM A	Sept. 21, 1883
POURTALES, L. F	July 17, 1880
RODGERS, JOHN	May 5, 1882
ROGERS, WILLIAM B	May 30, 1882
*SAXTON, JOSEPH	Oct. 26, 1873
*SILLIMAN, BENJAMIN, SR	Nov. 24, 1864
SMITH, J. LAWRENCE	Oct. 12, 1883
STIMPSON, WILLIAM	May 26, 1873
*STRONG, THEODORE	Feb. 1, 1869
*SULLIVANT, W. S	April 30, 1873
*TORREY, JOHN	Mar. 10, 1873
*TOTTEN, J. G	Apr. 22, 1864
WARREN, G. K	Aug. 8, 1882
WATSON, JAMES C	Nov. 23, 1880
*WINLOCK, JOSEPH	Jan. 11, 1875
*WYMAN, JEFFRIES	Sept. 4, 1874

*Biographical notices have been presented of those designated by a *.

FOREIGN ASSOCIATES.

BUNSEN, ROBERT W	*Heidelberg.*
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H. W. DOVE.
C. A. F. PETERS.
JUSTUS VON LIEBIG.
ALEXANDER BRAUN.
FRIEDRICH WÖHLER.

APPENDIX D.

LIST OF OFFICIAL REPORTS MADE TO THE GOVERNMENT BY THE NATIONAL ACADEMY OF SCIENCES, AND OF SCIENTIFIC PAPERS PRESENTED TO THE ACADEMY, 1863–1883.

OFFICIAL REPORTS.

1. On the protection of the bottoms of iron vessels. February 4, 1864.
2. On the magnetic deviations in iron ships. February 11, 1864.
3. On an alcoholometer. 1864.
4. On the explosion of the boiler of the United States steamer Chenango. 1864.
5. On the use of aluminium bronze for cent coinage. 1864.
6. On wind and current charts and sailing directions. 1864.
7. On the protection of the national currency against counterfeiting. 1865.
8. On testing the purity of whisky. 1865.
9. On the expansion of steam. 1866.
10. On the preservation of paint on army knapsacks. 1866.
11. On the prevention of counterfeiting. 1866.
12. On proving and gauging distilled spirits. 1866.
13. On the improvement of Greytown Harbor, Nicaragua. 1867.
14. On galvanic action from association of iron and zinc. 1867.
15. On spirit meters. 1868.
16. On the protection of coal mines from explosions by electricity. 1870.
17. On removal of ink from revenue stamps. 1870.
18. On distinguishing calf's-hair goods from woolen goods. 1875.
19. On water-proofing of the fractional currency. 1876.
20. On the surveys of the Territories. 1878.
21. On Demerara sugars. 1878.
22. On proposed changes in the Nautical Almanac. 1878.
23. Committee to co-operate with National Board of Health. 1879–1880.
24. On silk culture in the United States. 1870.
25. On the use of polarized light for determining values of sugars. 1878.
26. On the artificial coloring of sugars designed to simulate a lower grade according to the standard on which duties are levied. 1876–1877.
27. Instructions for the Polaris Expedition. 1873–1877.
28. On building-stone for custom-house, Chicago. 1878.
29. Measurement of velocity of light. 1878.
30. On the preservation of Government collection of Centennial Exhibition. 1876.
31. Magnetic chart of the United States. 1880.
32. Observation of Transit of Venus. 1873–1883.
33. Magnetic observations on the voyage of the Monitor and Monadnock around Cape Horn.
34. Reports on weights, measures, and coinage. 1863–1867.
35. On the construction and verification of the metric standards for the States. 1867.
36. On the introduction of metric scales in Post-Office Department. 1868.
37. International Bureau of Weights and Measures. 1873.

38. On the preservation of the writing of the original Declaration of Independence 1878.
39. Introduction of metric weights and measures in the United States. 1879.
40. On the exploration of the Yello wstone region by General Stanley. 1873.
41. Report on sorghum sugar. 1882.
42. On the separation of methyl from alcohol. 1883.
43. On the total eclipse of May 6, 1883. 1883.
44. Report on glucose. 1883.

SCIENTIFIC PAPERS.

I.—WASHINGTON, JANUARY 4–9, 1864.

1. On individuality among animals, with reference to the question of varieties and species. By LOUIS AGASSIZ.
2. On the elements of the mathematical theory of quality. By BENJAMIN PEIRCE.
3. Discussion of magnetic observations made at Girard College observatory, in the years 1840–'45. Parts IV, V, and VI. Horizontal force; investigation of the eleven-year period; of the solar diurnal variation and annual inequality, and of the influence of the moon. By A. D. BACHE.
4. On the force of fired gunpowder, and the pressure to which heavy guns are actually subjected in firing. By F. A. P. BARNARD.
5. Reduction of the observation of fixed stars made by d'Agelet at Paris during the years 1783–'85, with a catalogue of the corresponding mean places referred to the equinox of 1800. By B. A. GOULD.
6. On the metamorphoses of fishes. By LOUIS AGASSIZ.
7. On the Saturnian system. By BENJAMIN PEIRCE.
8. Notes on the parallelogram of forces, and on virtual velocities. By THEODORE STRONG.
9. On the geographical distribution of fishes, as bearing upon their affinities and systematic classification. By LOUIS AGASSIZ.
10. Discussion of magnetic observations, &c. Parts VII, VIII, and IX. Vertical force; investigation of the eleven-year period, of the solar diurnal variation and annual inequality, and of the influence of the moon. By A. D. BACHE.
11. Description of an anemograph, designed for the University of Mississippi. By F. A. P. BARNARD.
12. On materials of combustion for lamps in light-houses. By JOSEPH HENRY.
13. On photographs of the solar spectrum. By LEWIS M. RUTHERFURD.
14. On tangencies of circles and spheres. By J. G. BARNARD.
15. On observation of the planet Venus, near the times of her inferior conjunction, September 28, 1863, and subsequently. By STEPHEN ALEXANDER.
16. Brief note on the forms of icebergs. By STEPHEN ALEXANDER.

II.—NEW HAVEN, AUGUST 4–6, 1864.

17. Memoir of the late Henry Fits. By LEWIS M. RUTHERFURD.
18. On the distribution of certain important diseases in the United States. By A. A. GOULD.
19. On the integration of differential equations of the first order and higher degrees By THEODORE STRONG.
20. Criticism on the forms of ships. (Presented by Theodore Strong.) By Capt J. COLE.
21. On the light visible on the moon's surface, and that seen adjacent to her edge when the sun is either partially or totally eclipsed. By STEPHEN ALEXANDER

22. On the influence of the hour of the day on the results of barometric measurements of altitudes. By ARNOLD GUYOT.
23. On shooting-stars. By H. A. NEWTON.
24. A method of determining the errors of a vertical divided circle. (Presented by Benjamin Peirce.) By SIMON NEWCOMB.
25. Considerations relative to various phenomena presented by certain comets. By STEPHEN ALEXANDER.
26. Memoir of Lieut. E. B. Hunt. By F. A. P. BARNARD.

III.—WASHINGTON, JANUARY 3–7, 1865.

27. On a chronograph for measuring the velocity of projectiles. By J. E. HILGARD.
28. On the homologies and classification of the cephalopods. By L. AGASSIZ.
29. On the geographical distribution of North American birds. By S. F. BAIRD.
30. Note on the changes that have taken place in the bar of Charleston Harbor since the sinking of the obstructions in the main channel, as developed by the United States Coast Survey. By J. E. HILGARD.
31. On the tables of the moon. By BENJAMIN PEIRCE.
32. On the metamorphoses of some malacopterygians. By L. AGASSIZ.
33. On chemical classification. By WOLCOTT GIBBS.
34. On the dimensions and proportions of American soldiers. By B. A. GOULD.
35. On a method of exhibiting certain statistics of hospitals. By J. L. LE CONTE.
36. On the special phenomena and present configuration of the State of Maine. By L. AGASSIZ.
37. On a regulator for maintaining uniform motion, and an apparatus for recording time observations in type. By J. E. HILGARD.
38. On the progress of the geological survey of California. By J. D. WHITNEY.
39. On the mineral lands of the United States, and the relations of the Government to their management. By J. D. WHITNEY.
40. On the origin and formation of sedimentary rocks. By J. S. NEWBERRY.
41. On the origin and distribution of petroleum in the United States. By J. S. NEWBERRY.

IV.—NORTHAMPTON, AUGUST 23–26, 1865.

42. The theory of the sling. By BENJAMIN PEIRCE.
43. The facoids of the Coal Measures. By LEO LESQUEREUX.
44. Letter from. By L. AGASSIZ.
45. Observations of the right ascensions of stars within one degree of the north pole. By B. A. GOULD.
46. On observations of tides at the island of Tahiti, made by Capt. John Rodgers, of the United States Navy, for the United States Coast Survey. By J. E. HILGARD.
47. Discussion of magnetic observations made at Eastport, Me., during the years 1861–1864, by the United States Coast Survey. By J. E. HILGARD.
48. On rifled guns. By W. H. C. BARTLETT.
49. A new theory of the first principles of the differential calculus. By THEODORE STRONG.
50. On the ages of the United States volunteer soldiery, as deduced from the statistical bureau of the Sanitary Commission. By B. A. GOULD.
51. On a photometer. By O. N. ROOD.
52. On the structure of the moon. By S. ALEXANDER.
53. On the systems of mountain upheaval to which the continent of North America owes its present configurat on. By J. D. WHITNEY.
54. Abstract of geological investigations made in China and Mongolia (communicated by J. D. Whitney). By RAPHAEL PUMPELLY.

55. Examination of shells obtained by the sounding-lead in the coast survey of New York and New Jersey, with some nautical hints. By AUGUSTUS A. GOULD.
56. On the probable immediate cause of the Glacial Epoch of the Post Tertiary. By A. GUYOT.
57 On the Lower Silurian oils of Kentucky and Tennessee. By J. S. NEWBERRY.
58. Suggestions relative to the annular eclipse of the sun in October next. By S. ALEXANDER.
59. On certain converging series expressing the ratio of the diameter to the circumference of the circle (communicated by Benjamin Peirce). By WILLIAM FERREL.
60. On a tide meter for cold regions (communicated by Benjamin Peirce). By A. M. BATCHELDER.

V.—WASHINGTON, JANUARY 24–27, 1866.

61. On the silver reduction process of Nevada, with statistical tables, and metallurgical tables and data. By B. SILLIMAN.
62. On a new general method of volumetric analysis. By WOLCOTT GIBBS.
63. On sodium amalgam and its application in saving precious metals. By B. SILLIMAN.
64. On the limits and character of the vision of American soldiers as deduced by the statistical department of the United States Sanitary Commission. By B. A. GOULD.
65. On the primary triangulation of the coast of New England in connection with the United States Coast Survey. By A. D. BACHE.
66. On the relation of language to ethnology. By W. D. WHITNEY.
67. On certain mineral districts of Arizona. By B. SILLIMAN.
68. On California petroleum and the product of its distillation. By B. SILLIMAN.
69. Observations on the annular eclipse of October, 1865, made at Lebanon, Ill. By STEPHEN ALEXANDER.

VI.—NORTHAMPTON, AUGUST 7–12, 1866.

70. Photometric method. By OGDEN N. ROOD.
71. On a normal map of the solar spectrum. By WOLCOTT GIBBS.
72. On traces of glaciers under the tropics. By L. AGASSIZ.
73. On the secular acceleration of the moon's mean motion. By JOHN N. STOCKWELL.
74. On the origin of solar heat. By BENJAMIN PEIRCE.
75. On the morphological value and relations of the human hand. By B. G. WILDER.
76. On the correlation of gravity and temperature. By P. E. CHASE.
77. Grounds of analogy between linguistic science and the physical sciences. By W. D. WHITNEY.
78. On the limitation of homologies. By L. AGASSIZ.
79. On a new method of optical analysis. By WOLCOTT GIBBS.
80. On recent soundings in the Gulf Stream. By HENRY MITCHELL.
81. On repeated linear substitutions. By J. E. OLIVER.
82. On some points in the geological structure of Southern Minnesota. By JAMES HALL.
83. A new theory of planetary motion. By THEODORE STRONG.
84. On the linear evaluation of surd forms. By WILLIAM WATSON.
85. On the study of young animals, and its bearing upon the progress of palæontology and zoölogy. By ALEXANDER AGASSIZ.
86. On the mass of the satellites of Saturn. By BENJAMIN PEIRCE.
87. On a remarkable rainbow. By BENJAMIN PEIRCE.
88. Investigation in regard to sound in its economical applications. By JOSEPH HENRY.

89. On the geographical distribution of fishes in the waters of the Amazon. By LOUIS AGASSIZ.
90. On the stature of American soldiers. By B. A. GOULD.
91. On the influence of the hour of the day on the heights obtained by barometric measurements. By ARNOLD GUYOT.
92. On astronomical photography. By LEWIS M. RUTHERFURD.
93. On the reduction of photographic observations, with a determination of the positions of the Pleiades from photographs by Mr. Rutherfurd. By B. A. GOULD.
94. On a table for facilitating the conversion of longitude and latitude into right ascension and declination. By WILLIAM FERREL.
95. On the *Nephila plumipes*, or silk spider of South Carolina. By B. G. WILDER.

VII.—WASHINGTON, JANUARY 23–27, 1867.

96. On the systematic value of rhynchophorous Coleoptera. By J. L. LE CONTE.
97. On the November meteors. By HUBERT NEWTON.
98. On the total eclipse of the sun of August 7, 1850, in connection with some remarks of the annular eclipse of October, 1865. By STEPHEN ALEXANDER.
99. On some of the phenomena presented by the planet Venus when near her inferior conjunction. By STEPHEN ALEXANDER.
100. On the relative longitude of Europe and America, and the velocity of galvanic signals in the Atlantic cable. By B. A. GOULD.
101. On the principles of the classification of fishes. By LOUIS AGASSIZ.
102. Recent observations on the glacial phenomena of the basin of the Great Lakes. By J. S. NEWBERRY.

VIII.—HARTFORD, CONN., AUGUST 13–17, 1867.

103. A protest against modern nomenclature in zoölogy. By L. AGASSIZ.
104. On the duration of the electric discharge. By O. N. ROOD.
105. On homocercy and heterocercy. By L. AGASSIZ.
106. On new process in analytical chemistry. By WOLCOTT GIBBS.
107. On algebras. By BENJAMIN PEIRCE.
108. On the significance of classes in the animal kingdom. By L. AGASSIZ.
109. Observations in 1866-67 of right ascension of stars observed, by J. Lepaute d'Agelet. By B. A. GOULD.
110. Determination of the proper motions of stars, first observed by J. Lepaute d'Agelet. By B. A. GOULD.
111. On the limitations and conditions of associated linear algebra. By BENJAMIN PEIRCE.
112. On the limitations and conditions of associated linear algebra. By BENJAMIN PEIRCE.
113. The structural character of the sclachians. By L. AGASSIZ.
114. Note on a problem of curvature. By THOMAS HILL.
115. Remarks on the geological relations of the mastodon and fossil elephant suggested by the discovery of the Cohoes, N. Y., mastodon. By JAMES HALL.
116. On the precision of the equinoxes and nutation as resulting from the theory of the gyroscope, with remarks explanatory of the deviation of rifled projectiles. By J. G. BARNARD.
117. On single, double, and triple linear associative algebras. By BENJAMIN PEIRCE.
118. On sterility among skates. By LOUIS AGASSIZ.
119. On the fifth pair of nerves and the organ of hearing in skates. By L. AGASSIZ.
120. On periodical ovulation in sharks. By LOUIS AGASSIZ.
121. On quadruple linear associative algebras. By BENJAMIN PEIRCE.
122. Spectroscopic notices. By W. GIBBS.
123. On the value of certain groups in the geological series when studied in their geographical *extension*. By JAMES HALL.

124. The circulation of blood in selachians. By L. AGASSIZ.
125. On the determination of wave lengths by the method of comparison. By WOLCOTT GIBBS.
126. Parisitic crustacea in the gills of sharks. By L. AGASSIZ.
127. Embryology and affinities of the cylopterus. By L. AGASSIZ.
128. Further remarks explanatory of the deviation of rifled projectiles as resulting from the theory of the gyroscope. By J. G. BARNARD.
129. On a process of integration used in the case of a planet's orbit disturbed by smal forces. By THEODORE STRONG.

IX.—WASHINGTON, JANUARY 22–26, 1868.

130. On the practical character of the usual thermometric scales, and a common substitute for them. By ARNOLD GUYOT.
131. On the use and interpretation of single and double linear associative algebras. By BENJAMIN PEIRCE.
132. On the existence of a great central zone of fracture of the surface of the globe. By ARNOLD GUYOT.
133. Respecting the cosmical theory of the November meteors. By ALEX. TWINING.
134. The history of a week in the life of a young salmon. By L. AGASSIZ.
135. Comparison of the iron meter belonging to the American Philosophical Society, and used as the standard measure of the Coast Survey, with the platinum standard meter of the Conservatoire des Arts et Metiers in Paris, in the summer of 1867. By F. A. P. BARNARD.
136. Some points in the geological development of the continent between the Rio Grande and Arkansas River. By J. L. LE CONTE.
137. On the penetration of sound. By JOSEPH HENRY.
138. On a new reflector as a signal in geodetic observations. By J. E. HILGARD.
139. Remarks upon the condition of the skeleton of the mastodon found at Cohoes, N. Y., and its relations to the geology of the surrounding country. By JAMES HALL.
140. On observations of the zodiacal light. By BENJAMIN PEIRCE.
141. On the fauna of the Gulf of Mexico at great depths. By L. AGASSIZ.
142. Exploration of the coast of Alaska. By GEORGE DAVIDSON.
143. Notes on a treatise on topographical drawing by J. Enthoffer. By J. C. HILGARD.
144. Solution of a particular form of algebraic equation. By BENJAMIN PEIRCE.
145. Note on the velocity of the transmission of perceptions and volitions. By B. A GOULD.
146. Remarks on the buffalo of North America. By LOUIS AGASSIZ.

X.—NORTHAMPTON, MASS., AUGUST 25–29, 1868.

147. On the rainfall of the United States, discussed by Charles A. Schott, Assistant United States Coast Survey, from data collected by the Smithsonian Institute. By JOSEPH HENRY.
148. Remarks on Mr. Airy's reduction of Kirchoff's scale. By WOLCOTT GIBBS.
149. On the origin of bitumens, together with experiments of the formation o asphaltum by S. F. Peckham. By J. D. WHITNEY.
150. On the topography and topographical work west of the 103d meridian. By J. D. WHITNEY.
151. On an invariable meter. By A. C. TWINING.
152. On the tides and tidal currents in an estuary or a canal between two tidal basins. By B. PEIRCE.
153. On the fossil human skull of Calaveras County, California. By J. D. WHITNEY.
154. On deep-sea dredgings in the Gulf Stream. By L. F. POURTALES.
155. On subdivisions of cretaceous and marine tertiary formations in California. By *W. M.* GABB.

156. On the constitution of uric acid and its derivatives. By WOLCOTT GIBBS.
157. On new methods in analytical chemistry. By WOLCOTT GIBBS.
158. On the tides and tidal currents of Hell-Gate. By HARRY MITCHEL.
159. On the distribution of the forest vegetation west of the Rocky Mountains. By W. H. BREWER.
160. On the reported occurrence of human bones at Antelope Station, on the Union Pacific Railroad. By O. C. MARSH.
161. On the motions of a freely-suspended pendulum. By J. G. BARNARD.
162. On tides and tidal currents in a harbor. By BENJAMIN PEIRCE.
163. On alphabetic systems as tests of race. By W. D. WHITNEY.
164. On a new borate from Mine Hill, Sussex County, New Jersey. By G. J. BRUSH.
165. On the transportation of the materials of the carboniferous conglomerate. By J. S. NEWBERRY.
166. On the estimation of carbonic acid. By S. W. JOHNSON.
167. On nitrification. By S. W. JOHNSON.
168. On some points in the surface geology of the region west of the Rocky Mountains. By J. D. WHITNEY.
169. On the pendulum and gyroscope as exhibiting the rotation of the earth. By J. G. BARNARD.

XI.—WASHINGTON, APRIL 13–17, 1869.

170. On the age of beaver dams. By ALEXANDER AGASSIZ.
171. On the cooling of the sun and planets. By BENJAMIN PEIRCE.
172. On the most plausible reconstruction of the original Appalachian surface. By J. P. LESLEY.
173. On the bone phosphate beds of South Carolina, their formation, age, and fossils, including the human remains lately discovered. By F. S. HOLMES.
174. On a new meridian and equal altitude instrument used in the Coast Survey. By J. E. HILGARD.
175. On the deep-sea exploration of the Gulf Stream. By BENJAMIN PEIRCE.
176. On tidal researches. By WILLIAM FERREL.
177. On tidal rainfall. By P. E. CHASE.
178. On the products of the action of the alkaline nitrates upon uric acid and its derivatives. By WOLCOTT GIBBS.
179. On inversion in algebra. By BENJAMIN PEIRCE.
180. On a mode of examination of potable waters. By B. F. CRAIG.
181. On the meteorite which fell in Franklin County, Alabama, December 5, 1868. By GEORGE J. BRUSH.
182. On a new member of the chrysolite group. By GEORGE J. BRUSH.
183. On the effects of expansion and contraction in large ice fields, illustrating the formation of anticlinal and synclinal axes in geological formations. By M. C. MEIGS.
184. On international coinage. By S. B. RUGGLES and E. B. ELLIOTT.
185. On the tornado in Iowa and Illinois, June 3, 1860. By W. L. NICHOLSON.
186. On the history and present condition of an investigation of the winds. By JAMES H. COFFIN.
187. On the connection between solar spots, the magnetic declination, and the exhibition of the aurora borealis. By ELIAS LOOMIS.
188. On a certain new method of endiometrical analysis, with examples of analytical work done therewith. By B. SILLIMAN and HENRY WURTZ.
189. On the effects of atmospheric air in reducing the illuminating power of coal gas. By B. SILLIMAN and HENRY WURTZ.
190. On an important modification in the hydrocarbon process for the production of illuminating gas. By B. SILLIMAN.
191. On the physical construction of the sun. By J. H. LANE.
192. On the periodic *star in argus*. By ELIAS LOOMIS.

XII.—NORTHAMPTON, MASS., AUGUST 31–SEPTEMBER 3, 1869.

193. On the law of distribution of volcanoes and its bearing on the theory of volcanic action. By A. GUYOT.
194. On the correction for temperature and pressure in gas analysis. By WOLCOTT GIBBS.
195. Notice of a worn tooth and tusk of a mastodon indicating glacial action. By JAMES HALL.
196. On the structure of the Rocky Mountains as observed in the southern extension of the Black Hill range, the Sheep Mountain, and the eastern part of the Medicine Bow range. By JAMES HALL.
197. On solar heat and the temperature of the surface of the moon. By J. ERICSSON.
198. On the rate of asimuthal motion of a freely suspended pendulum as corrected for the proper apsidal progression of its orbit. By J. G. BARNARD.
199. On certain ammonia cobalt bases. By WOLCOTT GIBBS.
200. On the total eclipse of August 7, 1869. By B. A. GOULD.
201. On total eclipse of the sun, with observations on the recent eclipse. By STEPHEN ALEXANDER.
202. Notes on the aurora borealis. By W. H. DALL.
203. On the total eclipse of the sun, August 7, 1869. By A. C. TWINING.
204. On accidental colors and their application to the explanation of some phenomena of solar eclipses. By JOSEPH HENRY.
205. On the application of the spectroscope to the analysis of reflected light. By WOLCOTT GIBBS.
206. Contributions to the chemistry of common salt with special reference to our home sources of supply. By CHARLES A. GOESMANN.
207. On constancy of rotation of the earth, incompatible with solar influences. By JOHN ERICSSON.

XIII.—WASHINGTON, APRIL 13–17, 1870.

208. On the measurement of wave-lengths by means of indices of refraction. By WOLCOTT GIBBS.
209. On the coming transits of Venus, and the mode of observing them. By S. NEWCOMB.
210. Meridional arcs measured in connection with the Coast Survey. By J. E. HILGARD.
211. The relations of the four archetypes of structure of the animal kingdom as parts of one life system. By A. GUYOT.
212. Observations on the measurement and iconography of crania. By G. A. OTIS.
213. The Northmen in Greenland. By I. I. HAYES.
214. Considerations on the apparent inequalities of long periods in the moon's mean motion, and on the possible variability of the siderial day. By S. NEWCOMB.
215. On the deviation of compasses in iron-clad ships. By WILLIAM HARKNESS.
216. On the influence of the interior structure of the earth on precession and nutation. By J. G. BARNARD.
217. On the classification of clouds. By ANDRE POEY.
218. On the proposed astronomical observatory in the Argentine Republic. By B. A. GOULD.
219. On the comparison of barometers. By B. F. CRAIG.
220. On certain points in the use of artificial lights in photographing objects, as seen with the microscope. By J. J. WOODWARD.
221. On metric standards. By J. E. HILGARD.
222. On artificial deformation of skulls. By G. A. OTIS.
223. Reduction of photographic observations of Praesepe. By B. A. GOULD.

224. Astronomical photographs. By L. M. RUTHERFURD.
225. On some of the phenomena attending the tornado-thunderstorm of Iowa and Illinois of June 3, 1860. Report made for the Smithsonian Institute. By L. W. NICHOLSON.
226. The basalt of Washington Territory, Oregon, and Idaho. By R. W. RAYMOND.
227. On the lignites of Western America. By J. S. NEWBERRY.
228. Description of the new binocular for the microscope to be used with high powers. By F. A. P. BARNARD.
229. Redemption periods of life annuities and reversions. By E. B. ELLIOTT.
230. On the polarization of the atmosphere. By ANDRE POEY.
231. The classification of mammals. By THEO. GILL.
232. A new form of quarternions. By BENJAMIN PEIRCE.
233. New breeds of hardy silk-worms, which feed on the ailanthus and oaks, and the importance of their introduction into the country, a future industry. By J. Q. A. WARREN.

XIV.—WASHINGTON, APRIL 18–23, 1871.

234. On the waning of the glacial period. By L. AGASSIZ.
235. Explanation of the observed fact that a man's left side walks faster than his right. By WILLIAM FERREL.
236. Additional evidences in regard to the antiquity of man. By J. D. WHITNEY.
237. Optical notices. By WOLCOTT GIBBS.
238. On the discharge of a small Leyden jar. By O. N. ROOD.
239. On the hexatomic compounds of cobalt. By WOLCOTT GIBBS.
240. Determinations of the moon's mass from tide observations. By WILLIAM FERREL.
241. Some account of the progress in the investigation of the laws of winds. By JAMES H. COFFIN.
242. Some phenomena of acoustics. By J. HENRY.
243. On the influence of a covering of snow on climate. By ALEX. WOEIKOF.
244. Systematic zoology and modern nomenclature. By ALEXANDER AGASSIZ.
245. On the formation and motion of glaciers. By J. D. WHITNEY.
246. On certain compounds of iridium. By WOLCOTT GIBBS.
247. Geographical distribution of marine animals. By ALEXANDER AGASSIZ.
248. Non-associative algebra. By BENJAMIN PEIRCE.
249. Observations of the eclipse of the sun, December 22, 1870. By J. C. WATSON.
250. Some remarks on Lambert's formula. By JAMES H. COFFIN.
251. Probabilities in the game of billiards. By BENJAMIN PEIRCE.
252. On the use of the zenith telescope in the observations of the transit of Venus. By ORMOND STONE.

XV.—WASHINGTON, APRIL 16–19, 1872.

253. On evidences of glacial action near Montevideo, South America. By LOUIS AGASSIZ.
254. On the application of photography to the observation of the transit of Venus. By JOSEPH WINLOCK.
255. On observation of solar prominences. By JOSEPH WINLOCK.
256. Remarks on the discovery of two new planets, Nos. 115 and 119. By JAMES C. WATSON.
257. On the progress made in the construction of metric standards for the several States of the Union. By J. E. HILGARD.
258. Biographical memoir of Theodore Strong. By STEPHEN ALEXANDER.

XVI.—CAMBRIDGE, MASS., NOVEMBER 20–22, 1872.

259. The organization of the museum of comparative zoology in Cambridge. By L. AGASSIZ.
260. On three different modes of teething among selachians. By L. AGASSIZ.
261. On the manufacture of gunpowder for great guns, and on increasing the efficiency of small arms by improved ammunition and sights. By M. C. MEIGS.
262. An acoustic pyrometer. By A. M. MAYER.
263. Results of the Coast Survey astronomical expedition to the Rocky Mountains. By CHARLES A. YOUNG.
264. Presentation of an isothermal chart, and of a hypsometric sketch of the United States. By CHARLES A. SCHOTT.
265. Account of the proceedings of the International Metric Commission. By J. E. HILGARD.
266. Development of actiniæ. By ALEX. AGASSIZ.
267. The glacial phenomena of the southern hemisphere compared with those of the northern. By L. AGASSIZ.
268. Affinities of echinoderms and worms. By ALEX. AGASSIZ.
269. On the construction and advantages of a large aneroid barometer. By M. C. MEIGS.
270. Notice of investigations making in California on the reliability of the barometer as a hypsometric instrument. By J. D. WHITNEY.
271. Pedicillariæ of echinoderms. By ALEX. AGASSIZ.
272. On the determination of the relative intensities of sounds, and on the measurement of the powers of various substances to transmit and reflect sonorous vibrations. By A. M. MAYER.
273. Researches on the change of dimensions of iron and steel rods, and of hollow iron cylinders by their magnetization. By A. M. MAYER.
274. Experimental exhibition of the exploration of an acoustic wave-surface. By A. M. MAYER.
275. Analytical notices. By W. GIBBS.
276. Results of recent dredgings on the coast of New England. By A. E. VERRILL.
277. Tidal researches. By W. FERREL.
278. Embryological fragments concerning the volutidæ. By L. AGASSIZ.
279. On the specific identity of some animals along the Atlantic and Pacific shores of America. By L. AGASSIZ.
280. The copulatory organs of the selachians compared with one another and with those of other vertebrates. By L. AGASSIZ.
281. On the changes selachians undergo with age. By L. AGASSIZ.
282. Critical remarks about scientific views entertained upon theoretical grounds. By L. AGASSIZ.
283. Observations on the nature and duration of lightning. By O. N. ROOD.
284. Notice of the progress of the topographical work of the geological survey of California. By J. D. WHITNEY.
285. The 1474 corona line. By C. A. YOUNG.
286. Mathematical reversal and semi-reversal. By BENJAMIN PEIRCE.

XVII.—WASHINGTON, APRIL 15–19, 1873.

287. The determination of singular points of curves and surfaces by the methods of quarternions. By BENJAMIN PEIRCE.
288. On the meteoric iron found in 1871 near Shingle Springs, El Dorado County, California. By BENJAMIN SILLIMAN.
289. Determinations of longitude between Europe and America. By J. E. HILGARD.
290. *On the* structure and age of the Cincinnati anticlinal. By J. S. NEWBERRY.

291. On the need of more accurate investigations and tables of the celestial motions. By S. NEWCOMB.
292. Experimental and graphic results of distilling certain hydrocarbons by heat with and without the aid of vacuum and steam. By C. F. CHANDLER and B. SILLIMAN.
293. The geodesy of the United States Coast Survey. By BENJAMIN PEIRCE.
294. On the general atmospheric circulation. By A. J. WOEIKOF.
295. On repeating curves. By H. A. NEWTON.
296. Comparison of the spectra of the limb and of the center of the sun made at the Sheffield Scientific School by Charles Hastings. By H. A. NEWTON.
297. On the observation of very small stars near the ecliptic, and some peculiarities in two recently discovered minor planets. By J. C. WATSON.
298. On the altitude of Gray's and Torrey's Peaks, in Colorado Territory; some questions connected with the determination of barometric altitudes in the interior of continents. By A. GUYOT.
299. On some experiments made with a slitless spectroscope in 1871 in order to see the whole chromoscope of the sun at once. By JOSEPH WINLOCK.
300. On the stability of the meridian circle of Harvard College. By JOSEPH WINLOCK
301. On the method of illuminating the threads of the reticule of a telescope by the electric spark. By JOSEPH WINLOCK.
302. On observations of the sun made at Harvard College in 1872 with the aid of the Bache fund. By JOSEPH WINLOCK.
303. Report of the progress of a magnetic survey made by the aid of the Bache fund. By J. E. HILGARD.
304. On certain harmonies of the solar system. By STEPHEN ALEXANDER.
305. On the reproduction in progeny of defects produced by injuries in parents. By CHARLES E. BROWN-SEQUARD.
306. Silt analysis of soils and clays. By E. W. HILGARD.
307. On the unity of the system of life in animals, and the true principle of graduation in the various animal types. By A. GUYOT.

XVIII.—NEW YORK, OCTOBER 28–31, 1873.

308. Sound in relation to fog-signals. By JOSEPH HENRY.
309. Results of explorations of the deeper portions of the Gulf of Maine with the dredge. By A. S. PACKARD, Jr.
310. On the constitution of the sun's surface. By C. A. YOUNG.
311. On the admeasurement of volume. By J. E. HILGARD.
312. On the determination of the volume of a sphere. By HOMER J. LANE.
313. On the distribution of the thoracic spiracles of insects. By A. S. PACKARD.
314. Some results derived from an examination of the United States weather maps. By ELIAS LOOMIS.
315. Circles of deposition in American sedimentary strata. By J. S. NEWBERRY.
316. On the relations of different classes of vertebrates. By THEODORE GILL.
317. On a new method of analysis of composite sounds, and on experiments elucidating Helmholt's hypothesis of audition. By A. M. MAYER.
318. Experimental researches on fluorescence. By HENRY MORTON.

XIX.—WASHINGTON, APRIL 21–25, 1874.

319. On the classification of the rynchophorous series of coleoptera. By J. L. LECONTE.
320. Combinations of mechanism representing mental processes. By FAIRMAN ROGERS.
321. Suggestions as to the functions of the spiral scale of the cochlea, leading to an hypothesis of the mechanism of audition. By ALFRED M. MAYER.

322. Results of a series of experiments on the angle of reflection of gun-cotton when having been subjected to a transverse stress. By W. A. NORTON.

323. On the pretended realization of the inertia and the gravitating faculties of the atom. By CHARLES L. BROWN-SEQUARD.

324. Account of the proceedings of the commission for observing the transit of Venus. By SIMON NEWCOMB.

325. The progress made in the survey of the Colorado River of the West and its tributaries, by parties under the direction of the Smithsonian Institution. By J. W. POWELL.

326. On the tides of Paris. By WILLIAM FERREL.

327. The law of variation of the specific magnetic attraction. By ALFRED M. MAYER.

328. On measurement in inorganic chemistry. By W. ODLING.

329. An outline of the history and organization of the United States Geological Survey of the Territories, with some account of its results. By F. V. HAYDEN.

330. On a small correction of the velocity of light as deduced from experiments. By STEPHEN ALEXANDER.

331. Meteorological notes. By B. SILLIMAN.

332. Experiments on the reflection of sound from flames and heated gases. By A. M. MAYER.

333. On the laws of cyclones. By WILLIAM FERREL.

334. The history of Smith Sound, in a geographical and geological point of view, and some other general results of the Polaris expedition. By E. BESSELS.

335. Some results of an examination of the United States weather maps for the years 1872 and 1873. By ELIAS LOOMIS.

336. On the so-called land plants of the Lower Silurian of Ohio. By J. S. NEWBERRY.

337. Report on the great telescope of the United States Naval Observatory. By SIMON NEWCOMB.

338. The geographical distribution of the lignite group of the Southwest, with some remarks in regard to its age. By F. V. HAYDEN.

339. On certain phenomena sometimes presented by three of the satellites of Jupiter. By STEPHEN ALEXANDER.

340. A criticism on the contractional hypothesis of the earth's surface-change. By C. E. DUTTON.

341. On the polarization of the zodiacal light. By A. W. WRIGHT.

342. On some points in Mallet's theory of vulcanicity. By E. W. HILGARD.

343. On the zodiacal light. By STEPHEN ALEXANDER.

344. A new set of Bernoullili's numbers. By J. D. WARREN.

XX.—PHILADELPHIA, NOVEMBER 3–6, 1874.

345. Additional results derived from an examination of the United States weather reports. By ELIAS LOOMIS.

346. A new method of investigating the composite nature of the electric discharge. By A. M. MAYER.

347. On the specific gravity of the waters of the Gulf of Maine. By A. S. PACKARD, Jr.

348. On ancient ruins in Southwestern Colorado. By F. V. HAYDEN.

349. Some examples of the decomposition of rocks. By T. STERRY HUNT.

350. On an undescribed organ in Limulus, supposed to be venal in its nature. By A. S. PACKARD.

351. New discussion of the secular change of the magnetic declination in the United States and adjacent countries in North America. By CHARLES A. SCHOTT.

352. On a method of measuring minute variations in atmospheric pressure. By A. M. MAYER.

353. On the change in dimension of hollow iron cylinders and solid iron rods on their magnetization. By A. M. MAYER.

354. On the horizontal pendulum as arranged for purposes of physical investigation. By OGDEN N. ROOD.
355. On the effect of magnetism on the thickness of soft iron bars. By OGDEN N. ROOD.
356. On atmospheric air as engaged with sound. By JOSEPH HENRY.
357. On summary of work done by the United States Geological Survey of the Territories during the season of 1874. By F. V. HAYDEN.
358. On a method of separating ammonia and its compounds from gaseous mixtures. By B. SILLIMAN.
359. On an instance of total replacement of porphyry matrix by metallic copper. By RAPHAEL PUMPELLY.
360. An additional character serving to define the rhynchophorous series of coleoptera. By J. L. LE CONTE.
361. On the use of a mineral poison for the protection of agriculture. By J. L. LE CONTE.
362. Notes on Grant's difference engine. By F. ROGERS.
363. Observations on the Newport conglomerate. By W. B. ROGERS.
364. Simple mode of producing electricity for lecture-room purposes. By R. E. ROGERS.
365. Remarks in regard to the age of the lignitic group of Colorado. By F. V. HAYDEN.
366. On the value of paleontological evidence in determination of strata. By THEODORE GILL.
367. Description of a balance for determining specific gravities without calculation. By F. A. P. BARNARD.

XXI.—WASHINGTON, APRIL 20–23, 1875.

368. Results derived from an examination of the United States weather maps for 1872, 1873, and 1874. By ELIAS LOOMIS.
369. Notes on observation of the transit of Venus. By G. DAVIDSON.
370. On an improvement of the present civil or Gregorian calendar. By J. P. BRADLEY.
371. Results of experiments on the set of rectangular bars of wood, iron, and steel, resulting from a transverse stress. By W. A. NORTON.
372. Note on Goldschmid's aneroid barometer. By J. E. HILGARD.
373. Sketch of progress of second geological survey of Pennsylvania. By J. P. LESLEY.
374. On the orography of the Catskill group of mountains. By A. GUYOT,
375. Report of the committee on weights, measures, and coinage. By F. A. P. BARNARD.
376. On the observations of contacts in transits of Venus and Mercury. By S. NEWCOMB.
377. New formula for the deflections of rectangular bars or beams, resting on supports and subjected to a transverse stress. By W. A. NORTON.
378. Size of the brain of extinct mammals. By O. C. MARSH.
379. Account of researches in solar physics made at the Allegheny Observatory during the past four years. By S. P. LANGLEY.
380. Use of the stereoscope in the study of solid geometry. By JAMES D. WARNER.
381. On the interpolation of a change of sign by passage through infinity of a mathematical function expressive of a physical phenomenon; a curious particular case in the theory of tides. By J. G. BARNARD.
382. On the discussion of the laws of atmospheric circulation, by Prof. James H. Coffin (now deceased). By SELDEN J. COFFIN.
383. On the influence of arsenical compounds upon vegetation. By WM. MCMARTIN.
384. Preliminary account of results of a magnetic survey made at the charge of the Bache fund. By J. E. HILGARD.
385. On the relations of some of our ancient fossil fishes to living forms. By J. S. NEWBERRY.
386. On areas of cold. By A. WOEIKOF.

XXII.—PHILADELPHIA, NOVEMBER 2–5, 1875.

387. On the evidence of horizontal crushing in the formation of the Coast Range of California. By JOSEPH LE CONTE.
388. Contributions to meteorology. By ELIAS LOOMIS.
389. On the composition of schorlomite. By GEORGE A. KOENIG.
390. Sound in its applications to fog-signals. By JOSEPH HENRY.
391. Table of the sedimentary group of the plateaus. By J. W. POWELL.
392. Second notice of Grant's difference engine. By FAIRMAN ROGERS.
393. A new and simple form of compensating pendulum. By J. LAWRENCE SMITH.
394. A confirmation of my theory of the zodiacal light. By STEPHEN ALEXANDER.
395. Exposition of several very peculiar astronomical phenomena. By STEPHEN ALEXANDER.
396. Influence of marine life and currents in the formation of metalliferous deposits. By RAPHAEL PUMPELLY.
397. A soluble crystalline product from the graphite of meteoric iron. By J. LAWRENCE SMITH.
398. A notice of the modern system of chemical terminology. By R. E. ROGERS.
399. On the steam geysers of California, and on the chemistry of the mines of the Comstock Lode. By R. E. ROGERS.

XXIII.—WASHINGTON, APRIL 18–22, 1876.

400. On the precise determination of the number of vibrations of tuning-forks, and on the effect of temperature and of amplitude on the same. By A. M. MAYER.
401. On the theory of simultaneous ignition of many mines. By H. L. ABBOT.
402. On the theory of magic squares. By F. A. P. BARNARD.
403. Contributions to meteorology. By ELIAS LOOMIS.
404. On the sensations produced by concurrent and rapidly succeeding sounds. By A. M. MAYER.
405. On maxima and minima in algebra, by the late General D. P. Woodbury, with a biographical notice of the author. By J. G. BARNARD.
406. The character of the Eocene fauna of New Mexico. By E. D. COPE.
407. On the history of the problem of tangencies. By BENJAMIN ALVORD.
408. On the geological evidences on the question of the cause of the cold of the ice period. By J. S. NEWBERRY.
409. Biographical memoir of Joseph Winlock. By J. LOVERING.
410. On a method of exploring the acoustic condition of the atmosphere leading to determining the direction of a source of sound. By A. M. MAYER.
411. On the geological and physical structure of the Black Hills. By HENRY NEWTON.
412. On the imperfection of the present system of chemical nomenclature. By R. E. ROGERS.
413. The age of mountains as determined by degradation. By J. W. POWELL.
414. On the progress of the magnetic survey of the United States at the charge of the Bache fund of the Academy. By J. E. HILGARD.
415. Results of experiments on contact resistance. By WILLIAM A. NORTON.
416. A conjectural restoration of the pueblo of the mound-builders. By L. H. MORGAN.
417. On the geology of petroleum. By J. S. NEWBERRY.

XXIV.—PHILADELPHIA, OCTOBER 17–19, 1876.

418. Contributions to meteorology. By ELIAS LOOMIS.
419. Upon the direct comparison of solar radiation with that of the Bessemer furnace and upon the law of Du Long and Petit. By S. P. LANGLEY.
420. On the affinities of hypocephalus. By J. L. LE CONTE.

421. On a change in the relative length of the British bronze and iron standard yards in the United States office of weights and measures. By J. E. HILGARD.
422. On sounds in relation to fog-signals. By JOSEPH HENRY.
423. The results of an investigation upon the transformation of Planorbis multiformis. By ALPHEUS HYATT.
424. On the transmission of the shock of the explosion at Hell Gate. By H. L. ABBOT.
425. On the geological structure and topographical aspects of the Catskill Mountains. By JAMES HALL.
426. On the physical structure and altitudes of the southern group of the Catskill Mountains. By A. GUYOT.
427. On the force involved in Crooke's radiometer. By O. N. ROOD.
428. On a new method of studying reflection of sound-waves. By O. N. ROOD.
429. On a property of the retina first observed by Tate. By O. N. ROOD.
430. On a series of molecular changes in the basaltic rocks of Lake Superior. By R. PUMPELLY.
431. On the power of certain substances to abstract salts from their solution in water by filtration through them. By R. E. ROGERS.
432. On the compensation of a pendulum heretofore described. By J. LAWRENCE SMITH.

XXV.—WASHINGTON, APRIL 17–20, 1877.

433. On a new measuring instrument, the Vernier microscope. By A. M. MAYER.
434. On systematic errors in star declinations. By E. C. PICKERING and W. A. ROGERS.
435. On the young stages of some osseous fishes. By ALEXANDER AGASSIZ.
436. On critical periods in the history of the earth, and their relations to evolution, and on the quaternary at such a period. By JOSEPH LE CONTE.
437. On the progressive motion of storms. By WILLIAM FERREL.
438. Contributions to meteorology. By E. LOOMIS.
439. Improved method of obtaining metallic spectra. By G. F. BARKER.
440. On the effect produced by mixing white with colored light. By O. N. ROOD.
441. On Newton's use of the term indigo, with reference to a color of the spectrum. By O. N. ROOD.
442. Internal structure of the earth as affecting the phenomena of precession and mutation: supplementary to article under this head read before the Academy and published in Vol. XIX, Smithsonian Contributions. By J. G. BARNARD.
443. On a method of solar spectrum analysis. By S. P. LANGLEY.
444. On complex inorganic acids. By WOLCOTT GIBBS.
445. Micrometer-level and topographical camera. By E. C. PICKERING.
446. On the determination of the coefficient of expansion of solids. By A. M. MAYER.
447. The results of deep-sea dredgings. By ALEXANDER AGASSIZ.
448. Description of a detached gravity escapement. By C. A. YOUNG.
449. On the laws ruling the vibrations of tuning-forks. By A. M. MAYER.
450. On the structure of the "Henry" Mountains. By G. K. GILBERT.
451. On some remarkable facts in the distribution of magnetism in very long (60 inches) magnets. By A. M. MAYER.
452. Remarks on some artesian wells along the line of the Union Pacific Railroad, in Wyoming Territory. By F. V. HAYDEN.
453. On the structure of the crystalline lens and its relation to periscopism. By JOSEPH LE CONTE.
454. Remarks on the apparent secular acceleration of the mean motion of the moon, as derived from the observations of ancient eclipses. By SIMON NEWCOMB.
455. Researches in lunar theory. By GEO. W. HILL.
456. On the public domain. By J. W. POWELL.

XXVI.—New York, October 23–25, 1877.

457. On the laws of extreme distances in the solar system. By Stephen Alexander.
458. Velocity of transmission of shocks caused by the explosion of gunpowder and of nitro-glycerine compounds through the earth's crust. By Henry L. Abbot.
459. On the morphology of the antlers of the Cervidæ. By Theodore Gill.
460. On a new and simple method of determining the number of vibrations of sonorous bodies. By A. M. Mayer.
461. On a construction for the study of the contrast of colors. By O. N. Rood.
462. Whence came the inner satellite of Mars. By Stephen Alexander.
463. On the photometric comparisons of light of different colors. By O. N. Rood.
464. Contributions to meteorology (eighth paper). By Elias Loomis.
465. On abnormal phenomena of sound in relation to fog signals, on behalf of the United States Light-House Board. By Joseph Henry.
466. On the development of flounders. By Alexander Agassiz.
467. On the luminous band which seems to encircle the moon during a partial solar eclipse. By Stephen Alexander.
468. Note on the hydraulic limestone and associated strata at the falls of the Ohio. By James Hall.
469. On some gigantic Dinosaurian reptiles from the wealden of the Rocky Mountains. By O. C. Marsh.
470. On comets. By H. A. Newton.
471. On the inclinations in a direction retrograde to the shadow of the planets. By Stephen Alexander.
472. On a method of studying the velocity of sound in wood. By Dr. M. C. Ihlseng.
473. On some new fossil fishes from Ohio and Indiana. By J. S. Newberry.
474. On the geological age of the western lignites. By J. S. Newberry.
475. Remarks on the analyses of columbate, and on the native iron and basalt of Greenland, with exhibition of specimens showing the occurrence of sulphuret of chrome in meteoric iron. By J. Lawrence Smith.
476. On the air-sacs of locusts. By A. S. Packard, Jr. (Communicated by Alexander Agassiz.)
477. On the glycogenic function of the liver, and its relation to vital force and vital heat. By Joseph Le Conte.
478. American cretaceous birds. By O. C. Marsh.
479. Biographical memoir of Louis Agassiz; 1st part. Relating to his life and work in Europe. By A. Guyot.

XXVII.—Washington, April 16–19, 1878.

480. Formation and structure of Alacrane Reef, on the Yucatan bank. By A. Agassiz.
481. The theory of water-spouts. By Wm. Ferrel.
482. Report on the orbits of the satellites of Mars. By A. Hall.
483. The relation of loess and drift to secular disintegration. By R. Pumpelly.
484. The characteristic invertebrate forms of the central zoo-geographical province of the United States. By A. S. Packard, Jr.
485. On an optical ocean salinometer. By J. E. Hilgard.
486. Preliminary report on deep-sea dredgings of the United States Coast Survey, steamer Blake, during the past winter, in the Gulf of Mexico and in the Gulf Stream. By A. Agassiz.
487. Abrasions on the northwest coast of America. By G. Davidson.
488. On the law of Boyle and Mariotte. By W. Gibbs.
489. Abstract of memoir on the intersection of circles and the intersection of spheres. By B. Alvord.

490. Biographical memoir of Louis Agassiz; 2d part. Relating to his life and work in America. By A. GUYOT.
491. Biographical memoir of Jeffries Wyman. By A. S. PACKARD, Jr.
492. Plan for measuring the velocity of light. By S. NEWCOMB.
493. On the force of effective molecular action. By W. A. NORTON.
494. On the value of the results obtained for the solar parallex from the English telescopic observations. By C. H. F. PETERS.
495. On the vertebrate fauna of the Permian period of the United States. By E. D. COPE.
496. Report of progress on the subject of oxygen in the sun. By H. DRAPER.
497. Photometric comparison of the components of close double stars. By E. C. PICKERING.
498. On the duplication of geographical names. By F. V. HAYDEN.
499. Characteristics of some of the lower spectral lines. By S. P. LANGLEY.
500. A new element of the cerium group. By J. L. SMITH.
501. On the primary zoo-geographical divisions of the globe, and their relations. By T. N. GILL.
502. Mr. Wallace and Mr. Allen on geographical distribution, with special reference to the alleged distinctness of the nearctic region. By E. COUES.
503. On the laws governing the movements of the Rocky Mountain locusts. By C. V. RILEY.
504. On the structure and origin of mountains, with special reference to recent objections to the contractional theory. By JOSEPH LE CONTE.
505. Photometric measures of certain faint stars and planets. By E. C. PICKERING.
506. Contributions to meteorology. By E. LOOMIS.
507. Recent displacements in Utah. By G. K. GILBERT.
508. Supplementary notice on the paper "Whence came the inner satellite of Mars," read at the October session, 1877. By S. ALEXANDER.

XXVIII.—NEW YORK, NOVEMBER 5–8, 1878.

Title of papers read at the November session, 1878.

509. On the solar eclipse of July 29, 1878. By HENRY DRAPER.
510. The early types of insects. By S. H. SCUDDER.
511. On the acceleration of gravity at initial stations. By C. S. PEIRCE.
512. The inapplicability of the old theory of turbine water-wheels to the new constructions of Boyden and Francis. By W. P. TROWBRIDGE.
513. The embryology of the gar-pike. By A. AGASSIZ.
514. On arrangement of a zoological marine laboratory at Newport. By A. AGASSIZ.
515. On the value of photography in the study of instantaneous phenomena, illustrated by photographs taken at successive stages of torpedo explosions. By H. L ABBOT.
516. On the eleventh axiom of Euclid, with a proposed demonstration of the same. By S. ALEXANDER.
517. A biographical memoir of Prof. Dennis Hart Mahan. By H. L. ABBOT.
518. A continuation of a paper presented at the April meeting on the "Intersection of circles and the intersection of spheres." By B. ALVORD.
519. Contribution to meteorology; storms of the Atlantic Ocean. By E. LOOMIS.
520. On the instruments of precision at the Paris Exposition, &c. By G. DAVIDSON.
521. On some remains of new fossil fishes and their relation to living forms. By J. S. NEWBERRY.
522. On the quantitive analysis of white light. By O. N. ROOD.
523. On measures of the diameter of Mercury by a new method, made at the transit of May 6, 1878. By C. A. YOUNG.

524. A recapitulation of some of the author's views on the origin of the forms and the present state of many of the clusters of stars and of several of the nebulæ, source of solar heat, and drift of the stars. By S. ALEXANDER.
525. On some mooted points in American geology. By J. S. NEWBERRY.
526. On Hering's theory of color. By O. N. ROOD.
527. On the characters of the theromorphous reptilia and stegocephalous batrachia. By E. D. COPE.
528. Brief notice of the total solar eclipse of January 11, 1880. By S. ALEXANDER.
529. Some remarks on an investigation of the laws of heredity, undertaken by the board of health of Massachusetts. By A. HYATT.
530. On certain modifications of the Schehallien experiment, and of the Cavendish experiment. By S. ALEXANDER.

XXIX—WASHINGTON, APRIL 15–18, 1879.

531. Ghosts in the diffraction spectra. By C. S. PEIRCE.
532. Comparisons of the meter with wave lengths. By C. S. PEIRCE.
533. On the relations of neuralgic pains to storms and the earth's magnetism. By S. WEIR MITCHELL.
534. Confirmations by spectrum photographs of the discovery of oxygen in the sun. By HENRY DRAPER.
535. On vowel theories, considered in the light of recent experiments with the phonograph and phonautograph. By A. GRAHAM BELL.
536. The Palæozoic cockroaches. By S. H. SCUDDER.
537. On the eclipses of Jupiter's satellites. By E. C. PICKERING.
538. On a new form of heliostat. By ALFRED M. MAYER.
539. On the extinct species of the rhinoceros and allied forms of North America. By E. D. COPE.
540. On the errors of pendulum experiments, and on the method of swinging pendulums proposed by Mr. Faye. By C. S. PEIRCE.
541. The loess of the Mississippi, and the Æolian hypothesis. By E. W. HILGARD.
542. The extinct volcanoes about Lake Mono, and their relation to our glacial drift. By JOSEPH LEE CONTE.
543. Report on the progress of the International Bureau of Weights and Measures. By J. E. HILGARD.
544. On the stability and instability of drainage lines. By G. K. GILBERT.
545. On a new polariscopic method for the detection and estimation of dextro-glucose in the presence of cane and invested sugars. By CHARLES F. CHANDLER.
546. On the ignition of high-tension fuses. By HENRY L. ABBOT.
547. On the hibernations and migrations of *Aletia argillacea* (the parent of the cotton worm). By C. V. RILEY.
548. Report on dredgings in the Caribbean Sea by the Coast Survey steamer Blake, Commander John R. Bartlett, United States Navy. By ALEXANDER AGASSIZ.
549. On two new forms of micrometers. By E. C. PICKERING.
550. On the physical hydrography of the Gulf of Maine. By HENRY MITCHELL.
551. The winds on Mount Washington compared with the winds near the level of the sea. By ELIAS LOOMIS.
552. On a mineral locality in Fairfield County, Connecticut. By G. J. BRUSH.
553. On the great silver deposits recently discovered in Colorado, Utah, and Nevada. By J. S. NEWBERRY.
554. On the recurrence of solar eclipses. By SIMON NEWCOMB.
555. On the influence of Jupiter upon bodies passing near that planet. By H. A. NEWTON.
556. On the projections of the sphere which preserve the angles. By C. S. PEIRCE.
557. Report of the Committee on Weights, Measures, and Coinage. By F. A. P. BARNARD.

558. An account of geodetic arcs determined by the Coast Survey in relation to the figure of the earth. By J. E. HILGARD.
559. A biographical memoir of the late Dr. Theodore Strong. By Justice J. P. BRADLEY.
560. A biographical memoir of the late Dr. Jared P. Kirtland. By J. S. NEWBERRY.
561. On two more diazo colors from coal-tar. (Read by title only.) By C. F. CHANDLER.

XXX.—NEW YORK, OCTOBER 25–30, 1879.

562. On photographing spectra of the stars. By HENRY DRAPER.
563. Spectroscopic notes. By C. A. YOUNG.
564. Original researches, reported in the second volume of the Medical and Surgical History of the War of the Rebellion. By J. J. WOODWARD.
565. Some observations on the structure of the human brain. By J. C. DALTON.
566. Some remarks on a new map of the Catskill Mountains, and on the topographical relations of that mountain group to the adjacent regions of the Appalachian system. By A. GUYOT.
567. Brief comments on the nebular hypothesis of La Place. By S. ALEXANDER.
568. On some new and remarkable forms of crinoidea from the lower Helderberg formation. By J. HALL.
569. Notes on the Lycoperditis vanuxemi and allied forms. By J. HALL.
570. Mean pressure of the atmosphere over the United States at different seasons of the year. By E. LOOMIS.
571. The satellites of Mars in 1879. By A. HALL.
572. Questions as to a very direct and simple method of ascertaining the ellipticity of the terrestrial spheroid. By S. ALEXANDER.
573. The completion of the theory of parallel straight lines. By S. ALEXANDER.
574. Old river beds of California. By JOSEPH LE CONTE.
575. On our memory for color and luminosity. By O. N. ROOD.
576. On absorption of the solar atmosphere. By S. P. LANGLEY.
577. On the glycogonic function of the liver. By JOSEPH LE CONTE.
578. On Arago's experiment showing the magnetism of a conductor. By G. F. BARKER.
579. On the vegetation of the Atlantic coast of North America in the cretaceous age. By J. S. NEWBERRY.
580. On some interesting deposits of gold and silver ores in Utah and Colorado. By J. S. NEWBERRY.
581. On mocandrum and other earths recently announced as occurring in gadolinite, samarkite, &c. By J. LEE SMITH.

XXXI.—WASHINGTON, APRIL 20–23, 1880.

582. Binocular vision; laws of ocular motion. By JOSEPH LE CONTE.
583. On hollow water-spouts and sand-spouts. By WILLIAM FERREL.
584. On the structure of the vertebrata of the Permian period. By E. D. COPE.
585. On the perforations in the squamosal bone of the mammalia. By E. D. COPE.
586. Contributions to meteorology; on sudden changes of temperature at stations near the Rocky Mountains. By E. LOOMIS.
587. The sea urchins of the Challenger expedition. By A. AGASSIZ.
588. On the structure of the brain of Limulus Polyphemus. By A. S. PACKARD.
589. Conclusion of the investigations of the laws of ruling the vibrations of tuning-forks. By A. M. MAYER.
590. On the size of the brains of extinct animals. By O. C. MARSH.
591. On new complex inorganic acids. By W. GIBBS.
592. On the use of the electric telegraph during total eclipses, applied to the search for intra-mercurial planets. By D. P. TODD.

593. On the telegraphic determinations of longitude by the United States Hydrographic Office. By F. H. GREEN.
594. On the taconic system in geology. By T. S. HUNT.
595. On an instrument for measuring radiant heat. By S. P. LANGLEY.
596. On the composition of colors. By S. P. LANGLEY.
597. On the nebula of Orion. By E. S. HOLDEN.
598. On the distribution of the Zonopis conchifera. By T. N. GILL.
599. On the solar corona. By WILLIAM HARKNESS.
600. On an early race of man in Japan. By E. S. NORSE.
601. Revision of atomic weight of antimony. By J. P. COOKE.
602. Cloud-bursts. By WILLIAM FERREL.
603. On the effects of vibrations transmitted by railroad trains on observations in fixed observatories. By H. H. PAUL.
604. On the modifications suffered by light on passing through a very narrow slit. By A. A. MICHELSON.
605. Some remarks on the supposed nature of the sun's corona. By J. L. SMITH.
606. On a supposed new meteoric silicate. By J. L. SMITH.
607. On some modern developments bearing upon the nebular hypothesis and other matters connected therewith, as well as on some previous changes and miscellaneous notices. By S. ALEXANDER.

XXXII.—NEW YORK, NOVEMBER 16–19, 1880.

608. Report on the dredging cruise of the United States steamer Blake, Commander Bartlett, during the summer of 1880. By ALEXANDER AGASSIZ.
609. On the intimate structure of certain mineral veins. By BENJAMIN SILLIMAN.
610. Notes on the relations of the Oneonta and Montrose sandstones with the sandstones of the Catskill Mountains. By JAMES HALL.
611. On the new general method of analysis. By WOLCOTT GIBBS.
612. On some recent experiments in determining the electro-motive force of the Brush dynamo-electric machine. By HENRY MORTON.
613. Measurement of new form of electric lamps operating by incandescence. By HENRY MORTON.
614. On the Phenacodontidæ. By E. D. COPE.
615. On the Nimravidæ and Canidæ of the Miocene period. By E. D. COPE.
616. On the basin of the Gulf of Mexico. By J. E. HILGARD.
617. On the origin of the coral of reefs of the Yucatan and Florida banks. By ALEXANDER AGASSIZ.
618. Observations on ice and icebergs in the Polar regions. (By invitation of the Academy.) By Lieut. F. SCHWATKA, U. S. A.
619. On the duration of the Arctic winter. (By invitation of the Academy.) By Lieut. F. SCHWATKA, U. S. A.
620. Mineralogical notes. By BENJAMIN SILLIMAN.
621. The relationship of the Carboniferous to living and extinct Myriapods. By SAMUEL H. SCUDDER.
622. On measurement of radiant energy. By S. P. LANGLEY.
623. On the bolometer. By S. P. LANGLEY.
624. Causes which determine the progressive movements of storms. By ELIAS LOOMIS.
625. On the antimony mines of Southern Utah. By J. S. NEWBERRY.
626. On the conglomerate ore deposits of the United States and Mexico. By J. S. NEWBERRY.
627. On an improvement in the Sprengel air-pump. By O. N. ROOD.
628. On the deposits of crystalline ores in Utah. By J. S. NEWBERRY.
629. On the origin of anthracite. By T. STERRY HUNT.
630. On the star list of Abul Hassan. By C. H. F. PETERS.
631. On photographing the nebula in Orion. By HENRY DRAPER.

632. On condensers for currents of high potential. By GEORGE F. BARKER.
633. On Sigsbee's gravitating trap. By ALEXANDER AGASSIZ.
634. On the ellipticity of the earth as deduced from pendulum experiments. By CHARLES S. PEIRCE.
635. Dimensions of the brain and spinal cord in some extinct animals. By O. C. MARSH.

XXXIII.—WASHINGTON, APRIL 19–22, 1881.

636. On the domain of physiology. By T. STERRY HUNT.
637. The compass plant of the western prairies. (By invitation of the Academy.) By B. ALVORD.
638. The solar constant. By S. P. LANGLEY.
639. The color of the sun. By S. P. LANGLEY.
640. On mountain observations. By S. P. LANGLEY.
641. On the relations of soils to health. By R. PUMPELLY.
642. Reduction to sea level of barometric observations made at elevated stations. By ELIAS LOOMIS.
643. On electric light photometry. By GEORGE F. BARKER.
644. On the condenser method of measuring high tension currents. By GEORGE F. BARKER.
645. On the relations between strains and impacts and the structure of the feet of mammalia. By E. D. COPE.
646. On the progress of pendulum work. By C. S. PEIRCE.
647. On the carbon lamp fiber in the thermo-balance. By GEORGE F. BARKER.
648. Upon the production of sound by radiant energy. By A. GRAHAM BELL.
649. On the later tertiary of the Gulf of Mexico. By E. W. HILGARD.
650. On the utilization of the sun's rays in heating and ventilating. By EDWARD S. MORSE.
651. Recent researches in the vicinity of Bering's Strait, an account of the land ice of Kotzebue Sound and the Arctic coast. By W. H. DALL.
652. Recent researches in the vicinity of Bering's Strait; (II) additions to our knowledge of the currents and temperature of the ocean in the vicinity of Bering's Strait. By W. H. DALL.
653. Results just obtained with regard to the molecular weight of hydro-fluoric acid. By J. W. MALLET.
654. A method for finding the proximities of the orbits of minor planets. By C. H. F. PETERS.
655. On incandescent lights. By GEORGE F. BARKER.
656. On the auriferous gravels of California. By T. STERRY HUNT.
657. Biographical memoir of Louis F. Pourtales. By A. AGASSIZ.

XXXIV.—PHILADELPHIA, NOVEMBER 15–17, 1881.

658. On a gigantic scalpa from the Gulf Stream. By A. AGASSIZ.
659. The echini of the Challenger expedition. By A. AGASSIZ.
660. Classification of the Dinosauria. By O. C. MARSH.
661. Mean annual rainfall for different countries of the globe. By ELIAS LOOMIS.
662. The porntidæ and velellidæ and the surface fauna of the Gulf Stream. By A. AGASSIZ.
663. On complex inorganic acids. By W. GIBBS.
664. On the Phenacodontidæ, a new group of Perissodactyla. By E. D. COPE.
665. Succession in time of the Allotheria. By O. C. MARSH.
666. The distribution of the corals of the Tortugas. By A. AGASSIZ.
667. A comparison between the shells of Kjokkenmoddings and present shells of the species. By E. S. MORSE.
668. On a form of *regulator for the driving*-clock of an equatorial. By C. A. YOUNG.

669. On the objects and results of the recent expedition to Mount Whitney. By S. P. LANGLEY.
670. Notice of a remarkable mineral vein in the Black range (Negretta Mountains) of Socorro County, New Mexico. By B. SILLIMAN.
671. Statement respecting experiments on the velocity of light. By SIMON NEWCOMB.
672. On the logic of number. By C. S. PEIRCE.
673. On hydrometer scales. By G. F. CHANDLER.
674. On chinoline, its synthesis and medical uses. By HENRY MORTON.
675. On the theory of the dynamo-electric machine. By W. GIBBS.
676. Facts regarding sorghum, and some conclusions as to its value as a source of sugar. (Read by B. Silliman.) By PETER COLLIER.
677. On Mascart's electrometer and its use as a meteorological instrument. By G. F. BARKER.
678. On the fossil and recent faunæ of the Oregon desert. By E. D. COPE.
679. On a new form of volumescope. By R. E. ROGERS.
680. The newly-determined line of the terminal moraine across Pennsylvania. By J. P. LESLEY

Biographical memoir of S. F. Haldeman. By J. P. LESLEY.

XXXV.—WASHINGTON, APRIL 18–21, 1882.

681. On the course of the Gulf Stream since the Cretaceous period. By A. AGASSIZ.
682. Notes on the geology of Yucatan. By A. AGASSIZ.
683. The pre-Cambrian rocks of Italy. By T. STERRY HUNT.
684. On the brain of Phenacodus. By E. D. COPE.
685. On the young stages of a few osseous fishes. By A. AGASSIZ.
686. On the genesis and development of the Chiropterygium from the Ichthyopterygium. By T. GILL.
687. The affinities of Palæocampa, Meek and Worthen, as evidence of the wide diversity of type in the earliest known myriapods. By S. H. SCUDDER.
688. Preliminary notice of a new dividing engine. By H. A. ROWLAND.
689. On photographs of the spectrum of the nebula of Orion. By H. DRAPER.
690. Theory of concave gratings. By H. A. ROWLAND.
691. On the influence of time on the change in the resistance of the carbon disk of Edison's tasimeter. By T. C. MENDENHALL (by invitation of the Academy).
692. On the results of the incandescent lamp tests at the Paris Exhibition. By G. F. BARKER.
693. Note on a special form of secondary battery or electric accumulator. By W. GIBBS.
694. Researches on complex inorganic acids. By W. GIBBS.
695. Some discoveries that enhance the value of the cotton and orange crops. By C. V. RILEY (by invitation of the Academy).
696. The relation of rain areas to areas of low pressure. By E. LOOMIS.
697. Description of an articulate of doubtful relationship from the Tertiary beds of Florissant, Colorado. By S. H. SCUDDER.
698. Mythology of the Zuni Indians. By F. H. CUSHING (by invitation of the Academy).
699. On the polarization of the light of the moon. By A. W. WRIGHT.
700. On the infra-red portion of the solar spectrum as studied with the bolometer. By S. P. LANGLEY.
701. On the phenomena of metalliferous vein formation at Sulphur Bank, California. By JOSEPH LE CONTE.
702. On a form or standard barometer. By A. W. WRIGHT.
703. On a marsupial genus from the Eocene. By E. D. COPE.
704. On a fallacy of induction. By C. S. PEIRCE.

XXXVI.—New York, November 14–17, 1882.

705. On the mean annual rainfall. By E. Loomis.
706. On white phosphorus. By Ira Remsen.
707. On a modified form of solar eye-piece for use of large apertures. By C. A. Young.
708. On Triassic (?) insects from the Rocky Mountains. By S. H. Scudder.
709. Explanations on presenting a copy of the first ten numbers of the author's celestial charts. By C. H. F. Peters.
710. On a method of studying the laws of contrast quantitatively. By O. N. Rood.
711. On the existence in both hemispheres of a terrestrial dry zone and its cause. By A. Guyot.
712. On a graphical method of representing the errors of a screw. By A. M. Mayer.
713. On the general equations of optics as derived from the electro-magnetic theory of light. By J. W. Gibbs.
714. On an improved form of standard Daniell cell. By G. F. Barker.
715. On complex inorganic acids. By W. Gibbs.
716. On a sphereometer for measuring the radii of curvature of lenses of any diameter. By A. M. Mayer.
717. On a simple experimental demonstration of Ohm's law. By A. M. Mayer.
718. Lists of errors in star catalogues. By C. H. F. Peters.
719. On the heat of the Comstock lode. By G. F. Becker (by invitation of the Academy.)
720. On the physical and geological character of the sea-bottom off our coast, especially beneath the Gulf Stream. By A. E. Verrill.
721. Co-operation in observing variable stars. By E. C. Pickering.
722. On the topographical effects of faults and land-slides. By G. F. Becker (by invitation of the Academy).
723. On the physical conditions under which coal was formed. By J. S. Newberry.
724. On the fauna of the Puerco Eocene. By E. D. Cope.
725. On the total solar eclipse of May 6, 1883. By C. A. Young.
726. On so-called eruptive serpentines. By T. S. Hunt.
727. On the place of the Echneididæ in the system. By T. Gill.
728. Remarks on the structure of the present comet. By C. H. F. Peters.
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731. On the Permian genus Diplocaulus. By E. D. Cope.
732. On sinapic acid. By Ira Remsen.
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736. On the logic of relatives. By C. S. Peirce.
737. On the determination of the figure of the earth by the variations of gravity. By C. S. Peirce.
738. On Ptolemy's catalogue of stars. By C. S. Peirce.
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740. On the meridian photometer. By E. C. Pickering.

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742. On the nascent state of oxygen. By Ira Remsen.
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760. Notes on the mass of Saturn. By A. HALL.
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772. Marriage institutions in tribal society. By J. W. POWELL.
773. Atmospheric absorption. By S. P. LANGLEY.
774. Note upon the physical aspects of the higher members of the Chemung group, and the development and distribution of the fossil genera Ptychopteria and Leptodesma, preceded by a review of the Pectenidæ and Aviculidæ of the Devonian system. By JAMES HALL.
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776. The reduction of barometric observations to sea-level. By ELIAS LOOMIS.
777. On the affinities of the Dinosaurian reptiles. By O. C. MARSH.

APPENDIX E.

REPORT ON METHYLATED SPIRITS.

[CORRESPONDENCE.]

YALE COLLEGE, NEW HAVEN, CONN.,
September 25, 1882.

Hon. GREEN B. RAUM,
Commissioner of Internal Revenue:

SIR: I inclose herewith a report made by a committee of the National Academy of Sciences, in response to your communication of April 12, 1882, requesting an investigation of the question whether methyl or wood spirits may be entirely or approximately separated from ethyl alcohol or spirits of wine.

Yours respectfully,

O. C. MARSH,
Acting President of the National Academy of Sciences.

Prof. O. C. MARSH,
Acting President of the National Academy of Sciences:

SIR: The following letter was received by the late Prof. W. B. Rogers, president of the National Academy of Sciences, from the Commissioner of Internal Revenue, General Green B. Raum:

TREASURY DEPARTMENT,
OFFICE OF INTERNAL REVENUE,
Washington, April 12, 1882.

SIR: There is now pending before Congress a bill (H. R. 5082) "to authorize the withdrawal from distillery warehouse, without tax, of alcohol and other spirits to be used in industrial pursuits," which bill provides that "such spirits shall either first have been mixed with one-ninth of their bulk of methyl or wood alcohol, of equal proof strength, or that such spirits shall be withdrawn for use in tobacco factories, or such other industrial pursuits as shall entail their complete destruction so that they cannot be recovered by any process of distillation."

It is therefore deemed important to the interests of the revenue that a careful and thorough investigation be made, having for its object the determination of the fact whether the methyl or wood spirits may be, entirely or approximately, separated by distillation, or in any other economical manner, from the ethyl alcohol or spirits of wine upon which the tax is imposed.

In other words, the information sought is as to whether the science of chemistry now enables the possessor of the methylated spirits to separate the ethyl alcohol from such mixture in such a state of purity and at such a probable cost as might enable

the holder to sell it in the market at a less price than those persons who withdraw spirits from bond upon the payment of the tax at the rate of 90 cents per proof gallon.

I have therefore respectfully to request that a committee of the National Academy of Sciences be appointed to undertake this investigation, and to inform this office of the result at the earliest moment practicable.

I desire particularly to be advised as to the relative vaporizing point of purified wood-naphtha as compared with distilled spirits of the same specific gravity, and such other information on the subject as may assist this office in reaching a conclusion as to whether the bill referred to would be liable to abuse if it should become a law.

I have to ask if it is the pleasure of the academy to undertake this investigation, and if so, to be informed as to the nature and quantity of alcohol, wood-naphtha, and other materials which will be needed in the prosecution of this inquiry.

Very respectfully,

GREEN B. RAUM,
Commissioner.

Prof. W. B. ROGERS,
President National Academy of Sciences,
117 *Marlboro Street, Boston, Mass.*

In accordance with the above request, President Rogers appointed the undersigned committee. This committee having attended to the duty assigned to it, has the honor to present the following report:

The questions involved have several times been the subject of investigations. In England and Germany thorough investigations have been made. A law similar to the one proposed in the bill now pending before Congress has long been operative in England, and practically the same law has existed for a few years in Germany. Before the enactment of the law in England, the subject was thoroughly investigated by a committee consisting of Professors Graham, Hofmann, and Redwood. In their report to the chairman of inland revenue, dated July 24, 1854 (Journal of Chemical Society, vol. viii, p. 120), they took the ground that no economical method for separating wood spirits from ethyl alcohol was then known, and that the presence of the former even in very small quantity rendered the alcohol impalatable. The following recapitulation of their report will suffice:

It has appeared that means exist by which spirits of wine produced in the usual way may be rendered unfit for human consumption as a beverage without materially impairing it for the greater number of more valuable purposes in the arts to which spirit is usually applied. To spirit of wine of not less strength than corresponds to density 0.830, it is proposed to make an addition of 10 per cent. of purified wood-naphtha, otherwise known as wood-spirit, pyroxylic and methylic spirit, and to issue the mixed spirit for consumption, duty free, under the name of "methylated spirit." It has been shown that methylated spirit resists any process for its purification; the removal of the substance added to the spirit of wine being not only difficult, but to all appearance impossible; and, further, that no danger is to be apprehended of the methylated spirit being ever compounded so as to make it palatable. The privilege of using such mixed spirit should be open to all branches of the arts and manufactures without restriction; but it may be expedient to prevent the sale of methylated spirit in licensed public houses, or the preparation and sale of it by the licensed rectifiers of spirits. The wood-naphtha employed in mixing should be supplied by the inland revenue, in order to insure uniformity in its quality, and that substance be

mixed with the spirit at the distillery under Government inspection. The permission to use pure spirit of wine for any purpose of manufacture, under a bond of security, or in presence of a revenue officer, may reasonably be withheld till the methylated spirit now proposed has had a fair trial. It may be found safe to reduce eventually the proportion of the mixing ingredient to 5 per cent., or even a smaller proportion, although it is recommended to begin with the larger proportion of 10 per cent. The present supply of wood-naphtha is amply sufficient for the application contemplated of that substance, for mixing with the spirits used in the arts and manufactures of the country. The command of alcohol at a low price is sure to suggest a multitude of improved processes and of novel applications, which can be scarcely anticipated at the present moment. It will be felt far beyond the limited range of the trades now more immediately concerned in the consumption of spirits; like the repeal of the duty on salt, it will at once most vitally affect the chemical arts, and cannot fail ultimately to exert a beneficial influence upon many branches of industry. The same measure also practically removes one of the last anomalies in the duties imposed for revenue; alcohol having, as a raw material of manufacture, a claim to exemption from duty according to sound principles of taxation.

In some remarks, made in a supplementary report (January 8, 1855), they refer particularly to the possible use of the methylated spirit as a beverage, thus:

On a review of the subject, and after further inquiries among manufacturers and others, we doubt whether it would be prudent to permit, at first, the retail sale of the methylated spirit. It has been represented to us that the unrestricted sale of the spirit would cause it to get into the hands of individuals of perverted tastes, who, in extreme cases, may use it for producing intoxication. Although we are satisfied that such a misapplication of the methylated spirit could only occur in some isolated instances among persons of confirmed habits of intemperance, yet it may be feared that even such cases would cause a public outcry against the measure before it had received a fair trial. We would, therefore, recommend that the methylated spirit should be issued, by agents duly authorized by the board of inland revenue, to none but manufacturers, who should themselves consume it, and that application should always be made for it according to a recognized form, in which, besides the quantity wanted, the applicant should state the use to which it is to be applied, and undertake that it should be applied to that purpose only.

The manufacturer might be permitted to retail varnishes and other products containing the methylated spirit, but not the methylated spirit itself in an unaltered state.

In Germany the subject under consideration has also been fully investigated by Kraemer, Gerick, Dietze, and others. The results obtained by the three chemists named are summarized in Wagner's "Jahresbericht der chemishcher Technologie," 1878, p. 969. Kraemer recommends the use of the most impure varieties of wood spirit for mixing with ordinary alcohol. He selects for the purpose the first and last very impure products obtained in the distillation of crude wood spirit. These materials, he claims, render alcohol impalatable even to those with perverted tastes. It is further stated that the experience of years in countries in which wood-spirit is mixed with alcohol shows that there is little, if any, danger that the methylated spirit can be used as a beverage. The English chemists, on the other hand, recommended the use of *purified wood-naphtha* on the ground that it is just as difficult to separate this from alcohol as it is to separate the crude wood-

naphtha, and that the latter renders the alcohol unfit for use in some of the arts.

As it is desirable that the nature of the substances to which reference is repeatedly made in this report should be clearly understood, the following statements in regard to them will be of service:

As is well known, the names *alcohol*, *ethyl alcohol*, *ordinary alcohol*, *spirits of wine*, are given to the same substance. This substance as ordinarily met with in the market consists of varying proportions of ethyl alcohol and water. It is never met with entirely free from water. In the pure state ethyl alcohol has the spe cific gravity 0.80207 compared with water at 4° C. Its boiling point is 78°.3 C. The alcohol received from the Commissioner, and which was used in the experiments described below, has the specific gravity 0.8144 at 20°.7 C.

Pure *methyl alcohol*, or wood-spirit, has practically no taste and no odor. It is not readily obtained and is hence expensive. It has the specific gravity 0.7896 at 24°. 5 C., and boils at ?

Crude wood-naphtha, or wood-spirit, obtained by distilling wood, removing the pyroligneous acid from the product, and then redistilling, is a complicated mixture of substances. The principal constituent is usually methyl alcohol. Besides this there are usually present acetone and oily substances, some of which have strong and disagreeable odors. The bad odor of wood-spirit is due to these impurities and is not a property ot the principal constituent—methyl alcohol. The proportions of the various substances contained in crude wood-naphtha vary according to the conditions surrounding the process of manufacture. As regards the specific gravities and boiling points of the different substances known as crude wood-naphtha very little of value can be said.

Purified or *refined wood-naphtha* or *wood-spirit* is the name given to the wood-spirit obtained as above described, and then subjected to certain processes which remove some of the impurities. The extent of the purification varies according to circumstances, so that the products known as refined wood-naphtha vary very much in their composition and properties. In our experiments we have had to deal with three different varieties of refined wood-naphtha. The differences between these were quite marked, as shown in the odors, boiling points, and specific gravities. The boiling point of one specimen was comparatively low in consequence of the presence of a considerable quantity of acetone. It began to boil at 58°, at which point the principal quantity of the acetone passed over. The boiling point then rose rapidly to that of methyl alcohol, and after the greater part of this had passed over, the boiling point rose still higher, but did not remain constant, a fact indicating that what was left in the distilling flask, after the acetone and methyl alcohol had distilled over, was a mixture of several substances. This is, in general, the conduct of all the specimens of refined wood-naphtha examined, though, as already stated, the proportions of

the constituents are not in each case the same. The specific gravities of the specimens examined are:

Wood-spirit No. 1, 0.8149 at 30°.8 C.
Wood-spirit No. 2, 0.8186 at 20°.3 C.
Wood-spirit No. 3, 0.8374 at 24°.5 C.

The oily substances which give to wood-naphtha its odor cannot readily be removed completely, though they are removed partially by simple distillation.

Although the elaborate experiments of Graham, Hofmann, and Redwood, and of Kraemer, and Gericke, seem to show conclusively that alcohol to which wood-naphtha has been added cannot be again obtained in pure condition, the conclusion can hardly be regarded as final. The methods of distillation generally in use in chemical laboratories, and which were probably used in the experiments of the above-named chemists, are much less perfect than that which is used in the distillation of alcohol on the large scale. The "column-still," which the distillers use, is a much more efficient apparatus than those smaller forms of distilling apparatus which are in common use in chemical laboratories. Recently, however, some new forms of laboratory apparatus for distilling have come into use, and these approach more nearly in efficiency to the column-still. Among these, one of the best is that known as Hempel's tube. This consists of a glass tube about 1½ inches in diameter, and 3 feet long, filled with glass beads. The tube is inserted in the cork of the distilling flask, and the vapor of the distilled substance is caused to pass through the tube before it reaches the condenser. By this means some separations can be easily effected, which, without it are impossible in the laboratory. It was thought that this refined apparatus might accomplish the separation of wood-naphtha from alcohol —at all events, much more perfectly than the older forms of apparatus which have been used in earlier investigations.

Mixtures were made of alcohol and the three varieties of refined wood-naphtha above referred to, in the proportions prescribed by the bill. Each of the mixtures was then distilled with every precaution. A partial separation was effected, but the odor of the wood-naphtha was clearly recognizable in the best products obtained from these mixtures. The experiments were repeated a number of times, but we were unable to obtain even a small quantity of a product which did not unmistakably have the characteristic odor of the wood-naphtha. It appears from this that distillation alone, even with the most perfect instruments at the command of the chemist, cannot separate the wood-naphtha from ethyl alcohol so perfectly as to render the latter fit for use as a beverage.

The effect of bone-black was next tried. For this purpose freshly heated bone-black was used. The mixtures of alcohol with different kinds of wood-naphtha were allowed to stand for a length of time, varying in different cases from a few hours to a week. The mixtures experimented upon were also filtered through freshly-heated bone black.

While this treatment alone markedly improved the character of the alcohol, a strong odor was still left. The mixtures were then further distilled with the aid of the Hempel tube, and were further improved; but the best products obtained by this double treatment still had the odor of the wood-naphtha, though this odor was very much less marked than in the original mixtures.

Treatment with bone-black, together with distillation, is hence not sufficient to render the alcohol palatable; though this treatment improves it very much indeed.

The experiments which gave the best results consisted in treating the mixtures for some time with bone-black, and then distilling with the aid of the Hempel tube, and introducing into the alcohol before distillation a small quantity of caustic potash. In detail, we operated as follows:

The freshly-heated bone-black was put into the vessel containing the mixed alcohol, and the whole allowed to stand for about a day. The alcohol was then filtered from the bone-black, and a small quantity of caustic potash added. Then the liquid containing the alkali was distilled. The first product that came over boiled at a temperature below that of ethyl alcohol; this had a bad odor. Soon after the boiling point reached 78° (the boiling point of ethyl alcohol) the product which came over was nearly free from the disagreeable odor of wood-naphtha. By far the largest quantity of the product obtained in this distillation had very little odor. The last portion which came over had a disagreeable odor, but this was not much worse than that observed after distilling commercial alcohol of good quality.

It is unnecessary to describe, in detail, all the experiments we have performed. The final conclusion to which we are led is this: That by treating the mixtures of ethyl alcohol and wood-spirits (in the proportion proposed in the bill now before Congress) with bone-black, filtering, adding a caustic alkali—as, for example, caustic potash—and then distilling with the aid of the Hempel tube, the principal product obtained is nearly free from methyl alcohol, and that the odor and taste of this product are not very marked. At the same time, even in the best product thus obtained, the odor and taste characteristic of wood-naphtha can be detected, though only with difficulty, by those who are unskilled in such matters. We believe that the method employed by us which gave the best product could be applied economically on the large scale, and a product fully as good as our best, if not better than it, might thus be obtained.

As regards the question whether the product obtained could be used for drinking purposes, that is difficult for the committee to answer satisfactorily. We have submitted our best specimens to some well-known dealers in alcohol and alcoholic beverages, and we learn that the purified product might easily be used in the manufacture of low-grade whiskies and rum, though all the gentlemen whom we have consulted on this

point have unhesitatingly recognized the presence of the wood-naphtha in the best specimens.

It would appear from this that, while, after the addition of the wood-naphtha to alcohol, it is extremely difficult, if not impossible, to separate the two perfectly and thus to regenerate the pure alcohol, it is quite possible to get from the mixture a product which might be used in the manufacture of alcoholic beverages of lower order.

It is plain from the foregoing that, considering our experiments as final, it is impossible to purify the mixture containing wood-naphtha to a sufficient extent to make it palatable without the aid of distillation. Hence, apparently, it would be as difficult to carry on the process of purification on the large scale as to carry on the illegitimate manufacture of alcohol. This fact, in itself, might be a sufficient protection against fraud, though the committee does not feel competent to express a decided opinion on this point.

IRA REMSEN,
C. F. CHANDLER,
G. F. BARKER,
Committee.

BALTIMORE, *September* 18, 1882.

APPENDIX F.

REPORT ON GLUCOSE.

CORRESPONDENCE.

YALE COLLEGE, NEW HAVEN, CONN.,
January 7, 1884.

Sir: I have the honor to transmit to you herewith a report on glucose, made by a committee of the National Academy of Sciences, in response to a request of your predecessor, Hon. G. B. Raum, dated April 27, 1882.

Very truly, yours,

O. C. MARSH,
President of the National Academy of Sciences.

Hon WALTER EVANS,
Commissioner of Internal Revenue.

Professor O. C. MARSH,
President National Academy of Sciences:

Sir: I have the honor to transmit to you herewith the report of the committee of the Academy, appointed to investigate the "composition, nature, and properties of the article commercially known as glucose, or grape sugar."

With high respect, I remain your obedient servant,

GEORGE F. BARKER,
Chairman.

PHILADELPHIA, *January*, 5, 1884.

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REPORT.

I.—GENERAL INTRODUCTION.

The present committee was appointed in accordance with a request contained in the following letter from the Hon. Green B. Raum, Commissioner of Internal Revenue of the United States:

TREASURY DEPARTMENT,
OFFICE OF INTERNAL REVENUE,
Washington, April 27, 1882.

SIR: There is now pending before Congress a bill (H. R. 3170) "to tax and regulate the manufacture and sale of glucose," which bill proposes to so amend the internal-revenue laws as to impose a special tax upon the manufacturers of, and dealers in, glucose, and to levy a tax on the article in its solid, liquid, and semi-liquid form.

In view of this, I have respectfully to request the appointment of a committee of the Academy to examine as to the composition, nature, and properties of the article commercially known as glucose, or grape sugar.

This office desires to be informed as to the saccharine quality of this product as compared with cane sugar or molasses, and also especially as to its deleterious effects when used as an article of food or drink or as a constituent element of such articles.

Numerous specimens of the article in question are in the possession of this office, which will be placed at the disposal of the Academy.

Any expense necessarily incurred in conducting this inquiry will be paid upon the presentation of a properly prepared bill for that purpose.

Very respectfully,

GREEN B. RAUM,
Commissioner.

Prof. W. B. ROGERS,
President National Academy of Sciences,
117 *Marlboro' Street, Boston, Mass.*

The lamented death of President Rogers, to whom this letter was addressed, occasioned some delay; so that the committee asked for, which was appointed by Professor Marsh, the acting president of the Academy, was not finally named until the 10th of June, 1882.

The meeting of the committee for organization was held in the city of New York on the 6th of July, 1882. After a full discussion of the questions submitted to the committee in the letter of Commissioner Raum, *it was decided*: 1st, to have a complete bibliography prepared of the

literature of starch sugar;* 2d, to have the addresses of the starch-sugar factories in the United States obtained and the statistics of the manufacture collected; and, 3d, to have liberal samples of the various products procured, in order that their analysis might be complete and exhaustive.

To facilitate the latter part of the work a printed circular was prepared by the committee and mailed to twenty-four starch-sugar manufacturers, being all who were known at that time to the committee. A copy of this circular, including the inquiries contained in it, is appended to this report (Appendix 1). A complete list of the starch-sugar factories of the United States is also appended (Appendix 2). Those to whom the circular was sent are marked on this list with a star, the names of those parties from whom replies were received being given in a separate list immediately following. It will be observed that eighteen of these twenty-four factories responded to the circular. The replies to the questions were full and courteous, and every facility was offered to the committee for the furtherance of its investigations.

At an early meeting the chemical investigation, including the analysis of samples, was assigned to Professors Gibbs, Chandler, and Remsen, it being understood that the two first named should consider especially the inorganic constituents and impurities found in commercial starch-sugar, and the latter the organic substances present in it, together with the experiments on its physiological action and that of its fermentation products. The preparation of the bibliography of the literature of starch sugar and the statistics of the starch-sugar industry was referred to Professor Chandler.

It soon became evident to the committee that the subject which it had in hand was too extended to be satisfactorily investigated within the time allotted. A letter was therefore addressed to Commissioner Raum stating the facts and asking whether it was essential that the report of the committee should be presented to the Congress then in session. In his reply the Commissioner stated that he was satisfied that no legislation could be had upon the subject of glucose during that Congress; and therefore suggested that the committee take all the time for the investigation which they required.

Thereupon a somewhat more extended plan of operations was determined on. With the view of actually witnessing the manufacture of glucose and grape sugar, and of familiarizing themselves with the details of this manufacture upon a commercial scale, the members of the committee, upon invitation of Mr. Hiram Duryea, visited the extensive works of the Glen Cove Manufacturing Company, at Glen Cove, Long Island, N. Y. These works were in full operation at the time, and every facility was afforded the committee in its investigation of the various processes and in the procuring of samples. The committee also visited

* In commerce the term "glucose" is used to signify the liquid product, and "grape sugar" the solid product; the term "starch sugar" in this report includes both forms.

the works of the Manhattan Sugar Company, in New York City; but at the time of the visit these works were not in operation. Since the distance of the starch-sugar factories of the West rendered a personal inspection of these factories impracticable the committee selected Louis H. Laudy, Ph. D., of Columbia College, and commissioned him to make the tour of examination for them and to collect information and procure samples. This service he performed to the entire satisfaction of the committee. He went first to Buffalo, N. Y., where he visited the works of the Buffalo Grape Sugar Company, of the American Grape Sugar Company, and of the Firmenich Sugar Refining Company. He then proceeded to Chicago and visited the works of the Chicago Sugar Refining Company. On his return he stopped at Detroit and examined the works of the Michigan Grape Sugar Company. At all these factories he was cordially received and every opportunity was afforded him for witnessing the processes employed and for collecting samples of the products. In some cases the details of certain of the processes used were given to Dr. Laudy in confidence for the sole use of the committee. With these exceptions the information thus obtained has been used in drawing up the present report. The samples collected were distributed to the members of the committee for examination and report.

The chemical and physiological investigations went on uninterruptedly during the spring and summer months of 1883. The character of these investigations, including the methods which were employed and the results which were obtained, is given in the following pages:

II.—THE STARCH-SUGAR INDUSTRY.

1.—Historical.

The starch sugar of commerce consists chiefly of dextrose with varying quantities of another kind of sugar called maltose, and often more or less dextrin or starch gum.

Dextrose was first recognized as a peculiar variety of sugar, differing from cane sugar or saccharose, by Lowitz, in 1792, who prepared it from honey.

In 1811 Kirchhoff prepared it from starch by the action of dilute sulphuric acid.

In 1819 Braconnot prepared it from vegetable fiber or cellulose, such as linen rags, sawdust, etc., by the action of sulphuric acid.

It is generally known in chemical works as dextrose, or dextro-glucose, but is also called glucose, glycose, grape sugar, starch sugar, potato sugar, &c.

It occurs ready formed in honey, associated with cane sugar and levulose or levo-glucose; in most acid fruits, as the grape, &c., associated with levulose; in the manna of the ash tree, in diabetic urine, etc.

It is produced from cane sugar together with levulose, by the action

of acids, yeast, etc., the mixed glucoses being called inverted or fruit sugar.

It is produced from starch by the action of dilute acids. It is also produced from vegetable fiber or cellulose by the action of sulphuric acid and also by a natural process during the ripening of some fruits, especially pears.

Dextrin and other carbohydrates also yield it by the action of acids. There is also a large class of organic bodies, which occur chiefly in plants, called glucosides, which yield glucose, together with other products, by the action of dilute acids or of peculiar ferments. Examples of this class are found in the amygdalin of bitter almonds, the salicin of willow bark, the myronic acid of mustard seed, the solanin of potato shoots, &c.

In 1847 Dubrunfaut pointed out the fact that the sugar produced from starch by the action of barley malt differed in some respects from dextrose, and proposed for it the name maltose.

O'Sullivan has shown that no dextrose is produced by malt, but that the product consists entirely of maltose and dextrin.

Maltose has since been found to be a constituent of most starch sugar. It often exceeds in quantity the dextrose, especially when the acid employed in the conversion has been very dilute, and the boiling continued for but a short time. Long boiling converts the maltose into dextrose.

2.—The Manufacture of Starch Sugar.

In France and Germany potato starch constitutes the only available material for the manufacture of this sugar, but in the United States the starch of Indian corn or maize is invariably employed.

The process consists, first, in extracting the starch from the corn in a state of sufficient purity, then transforming this into sugar by treatment with dilute acid, and subsequently neutralizing the acid, purifying, and then concentrating the product.

The details of the various steps differ in different establishments, but the general character of the process is the same as when first proposed in 1811 by Kirchhoff.

A.—Extracting the Starch.

1. *Steeping.*—The corn is placed in large wooden vats or tanks, holding from 500 to 1,000 bushels. It is covered with hot water, having a temperature of about 160° F. in summer, and 185° in winter. The corn immediately reduces the temperature of the water to about 140° or 145° F. Every six hours the water is drawn off and replaced with fresh water at about 130° or 135° F. If signs of fermentation appear the water is changed oftener; the object being to soften the corn, without permitting it to become sour. From two to four days steeping are required, the time depending on the hardness of the corn. Some manu-

facturers add to the water a little sulphuric acid, sulphurous acid, or caustic soda.

2. *Grinding.*—The softened corn is next ground between burr stones, a stream of water running continuously into the eye of the mill. As it is ground the thin paste is carried by the stream of water upon the shakers or sieves. Some manufacturers pass the paste through a second mill before it is sent to the shakers; others send it from the first mill to the shaker, and submit the husks to a second mill, employing a second shaker.

3. *Separation of the starch.*—The paste or pulp from the mill is passed over shakers, or starch separators. These are inclined sieves of silk bolting cloth, which are kept in constant motion, and sprayed with jets of water. The starch passes through the bolting cloth with the water, as a milky fluid, while the coarser cellular tissue or husk of the corn is left behind. This residue is pressed to remove water, and sold as cattle food.

4. *Cleansing the starch.*—The water from the shakers holding the starch in suspension is run either directly upon the tables or into wooden vats where the starch settles and the water is drawn off and discarded. The starch is next thoroughly agitated with fresh water, to which a small quantity of caustic soda, or carbonate of soda, has been added. The object in adding the alkali is to dissolve and remove the gluten and other albuminoids, oil, &c.

5. *Collecting the starch.*—The mixture of starch and alkaline water is allowed to flow upon long wooden runs, or tables, which are from 1 to 2 feet wide and 125 feet long. Twenty-five or fifty of these runs are required for the treatment of 1,000 bushels of corn daily. These runs have a slight incline, and as the cream flows slowly upon the upper end the starch is deposited, while the alkali wash, bearing lighter particles of cellular tissue, gluten, etc., flows off from the lower end. Some manufacturers prefer to treat the starch with alkali after it has been collected on the runs; while others treat it with alkali both before and after it goes on the runs.

6. *Washing the starch.*—The starch is next shoveled up from the runs and mixed with water, and then again allowed to settle. The water is drawn off, and the washing repeated, sometimes with a slight addition of hydrochloric acid; finally the thoroughly purified starch is mixed with the proper amount of water for the converter. The yield varies with the quality of the corn; a fair average would be, per bushel:

	Pounds.
Starch	30
Cattle food	14
Waste	12
Total	56

B.—TRANSFORMING THE STARCH INTO SUGAR.

7. *Conversion*, as it is termed, is accomplished in either open or closed converters; and in some establishments the process is partially executed in open and finished in closed converters.

The open converters are wooden vats, generally of 3,000 or 4,000 gallons capacity, sufficient for the treatment of the starch from 1,000 bushels of corn. They are provided with banks of copper steam-coils, either closed or perforated. The closed converters are generally of copper. They are provided with safety-valves, and are made of sufficient strength to withstand with safety a pressure of six atmospheres.

Sulphuric acid is generally employed in the conversion, though other acids have been used. The quantity of acid employed varies with the object of the manufacturer; for the production of "glucose," a liquid product, which contains much dextrin, a smaller quantity is used than when solid "grape sugar" is to be produced, in which the conversion into dextrose is much more complete. The proportion varies from one-half pound oil of vitriol to one and a quarter pounds per 100 pounds of starch.

When the *open converter* is used a few inches of water is introduced and the acid added, or half the acid may be added to the starch mixture. The acid water is brought to a boil, and the starch, previously mixed with water to a gravity of from 18° to 21° Baumé, is slowly pumped in, keeping the liquid constantly boiling. When the starch has been all introduced the whole is boiled until the iodine test ceases to give a blue and shows a dark cherry, or better an orange, color. The boiling is usually continued for from two to four hours.

When the *closed converter* is used the starch is mixed with water to a gravity of from 11° to 16° Baumé. This with the acid is introduced into the converter, and the whole is heated under a pressure of from 25 to 75 pounds per square inch. The time required for the conversion is much shorter than in the open converters.

The use of open and closed converters successively is often resorted to. The starch and water of a gravity of 15° or 16° Baumé is first boiled in the open converter for from one to two hours, then transferred to the closed converter and boiled under a pressure of from 25 to 75 pounds per square inch. The time of this boiling varies from ten minutes to half an hour.

The use of other acids.—C. Kroetke, in 1871, introduced in Germany the use of nitric acid in conjunction with sulphuric acid, in the proportion of two ounces of nitric acid to every pound of sulphuric acid.

Phosphoric acid has been patented as a substitute for sulphuric acid.

In 1858 R. Wagner suggested the use of oxalic acid in place of sulphuric acid.

E. Delarue & Co., of Paris, patented the use of oxalic or tartaric acid in 1879. Finally Bachet and Savalle state that under a pressure of

eight atmospheres carbonic acid readily converts starch into dextrose.*

8. *Neutralization.*—When the starch has been sufficiently converted for the desired product, the liquor is run into the neutralizing vats. Here a sufficient quantity of marble dust is added to completely neutralize the sulphuric acid, converting it into sulphate of lime. In some cases the neutralization is completed with whiting.. A little fine bone-black is generally added just before and just after neutralizing. It is then allowed to cool and to deposit the sulphate of lime. A small portion of this sulphate of lime is retained in solution, and although most of this will be removed by the subsequent filtration through bone-black, a minute quantity is always found in the finished product. Kunheim & Co., in Berlin, propose to remove this by a small addition of oxalate of or phosphate baryta.

9. *Bag filtration.*—The liquor, having a gravity of 12° to 20° Baumé (light liquor), is next filtered through bag filters of cotton cloth or filter presses, or both.

10. *Treatment with sulphurous-acid gas.*—In many establishments this is resorted to at this point in the process to prevent fermentation, and probably to some extent as a bleaching agent.

11. *Bone-black filtration.*—The liquor is now passed through bone-black filters, by which it is decolorized and at the same time freed from various other soluble impurities.

12. *Concentration* is effected in the vacuum pan at a temperature of from 130° to 140° F. until it has a gravity of from 28° to 33° Baumé. This is called heavy liquor.

13. *Second bag filtration.*—During the concentration a certain quantity of sulphate of lime separates, and it is found advisable to remove it when the liquor reaches the gravity of 28° or 33° Baumé. It is, therefore, filtered through the bag filter or filter press.

14. A second treatment with sulphurous acid is resorted to in some factories, the acid being added in the vacuum pan or to the liquor as it comes from the bag filte s.

15. *Second bone-black filtration.*—The heavy liquor is now filtered a second time through animal charcoal to secure a further decolorization and purification.

16. The final concentration is accomplished by boiling the liquor in the vacuum pan till it exhibits a gravity of from 40° to 42° Baumé while hot. It is then let down from the pan and subjected to—

17. A third filtration through a filter press to remove the sulphate of lime which separates during the final concentration.

In some establishments the liquor is passed but once over bone-black; in fact all of the steps which have been mentioned are followed only by those manufacturers who desire to produce the best products.

* The committee does not feel at liberty to publish the peculiar processes employed by the different factories, as these were communicated in confidence.

18. *Final treatment.*—The resulting product will vary in character according to the amount of acid used and the duration and temperature of the conversion. The variety in which the conversion has been least complete is called "glucose" in the trade and remains liquid. That in which the conver-sion is more complete, and which solidifies in the packages in consequence, is called "grape sugar."

An ingenious process has been invented by Dr. Arno Behr for causing the grape sugar to crystallize. While it is still liquid there is added to it a very small quantity of crystallized anhydrous dextrose. The mixture is filled into molds, and in about three days it is found to be a solid mass of crystals of anhydrous dextrose. The blocks are then placed in a centrifugal machine to throw out the still liquid sirup, and the anhydrous dextrose remains asa cr ystalline mass.

Starch sugar appears in commerce in a great variety of grades under the following names:

(*a.*) The liquid varieties—
Glucose.
Mixing glucose.
Mixing sirup.
Corn sirup.
Jelly glucose.
Confectioners' crystal glucose.

(*b.*) The solid varieties—
Solid grape sugar.
Clipped grape sugar.
Granulated grape sugar.
Powdered grape sugar.
Confectioners' sugar.
Brewers' grape sugar.

One establishment puts upon the market two varieties of starch sugar under the names—

1. Maltose, or maltose sirup for brewers,
2. Maize sugar or sirup, for confectioners,

and claims that they do not contain grape sugar (dextrose) but consist essentially of maltose.

The committee visited the factory, but it was not in operation, nor were the proprietors disposed to inform the committee of the nature of their processes, which they deemed it important to hold secret. They kindly supplied samples, however, and these are included in the list of analyses.

3.—Magnitude of this industry.

The manufacture of starch sugar came into existence during the continental blockade which prevailed under Napoleon I. With the raising of this blockade the industry practically disappeared, as starch sugar could not compete with the colonial sugar of the cane.

The industry gradually revived, however, and finally acquired very considerable importance.

Although the committee has been able to secure a very complete list of all the starch sugar factories in the country, it has been found practically impossible to present any very clear idea of the magnitude of the business. This is due to the great irregularity of the working of these factories. When corn is low in price, and cane sugar, molasses, and barley high, all the establishments referred to are in full operation and the production of starch sugar is proportionally large. When the opposite conditions prevail, as they do at the present time, the starch sugar works are closed. Thirty-two factories exist in the United States, with a capacity ranging from 500 to 8,000 bushels of corn a day, most of them using about 2,000 bushels. The committee believes that it is safer to estimate an average capacity of 1,500 bushels; which would make the total capacity 43,000 bushels per day.

The Census Bulletin No. 304 gives seven glucose factories, with a capital of $2,255,000, and a gross value of products of $4,551,212.

Payen, in the third edition of his Chimie Industrielle, published in 1855, places the French production of potato starch sugar at 5,000,000 kilograms or 5,500 tons per annum.

The manufacture of starch sugar from potatoes is an old manufacture in Germany, and very complete statistics showing its extent have been published from time to time. Wagner, in the second edition of his Chemische Technologie, states that there were in 1874 sixty glucose factories in the German Empire, with an annual production of 360,000 centners (19,800 tons) sirup and 500,000 centners (27,500 tons) solid sugar. Post, in his Chemische Technologie, places the production during the fiscal year 1877–'78 of the 45 factories in Germany at 5,931 tons starch sirup and 8,135 tons starch sugar, at a price for the sugar varying from $82.50 to $84 per ton.

It is stated in Wagner's Jahresbericht for 1877 that 2,221 tons of starch sugar were used in the manufacture of beer in Germany during the year 1876. The following table, giving the production for the fiscal year 1881–'82, is translated from Wagner's Jahresbericht der Chemischen Technologie for 1882:

Production of starch sugar in the German Customs Union in fiscal year 1881–'82 in tons of 2,000 pounds.

States and provinces.	Number of factories.	Quantity of starch converted.				Quantity of sugar made.			Average selling price, per 2,000 pounds.		
		Starch made.		Starch purchased.		Grape sugar (solid).	Glucose (liquid).	Sugar color.	Grape sugar (solid).	Glucose (liquid).	Sugar color.
		Moist.	Dry.	Moist.	Dry.						
Prussia:											
Province of Brandenburg	15	18,961	2,055	32,852	11	14,920	14,705	834	$62 30	$63 90	$83 25
Province of Pomerania	*4	192	.....	131	.....	167	27	.....	54 00	67 25	.....
Province of Posen	1	333	.....	1,729	.....	199	806	242	54 00	58 50	58 50
Province of Silesia	4	942	.....	8,333	.....	1,566	372	289	53 55	54 45	89 55
Province of Saxony	4	2,279	226	1,093	.....	1	1,476	3 46	67 50	61 65	78 98
Rhine provinces	2	1,333	.....	.....	.....	888	.....	.....	72 00	.....	.....
Total	30	24,045	2,281	44,138	11	17,742	17,386	1,711	61 87	63 45	79 87
Bavaria	1	.....	.....	.....	.....	40	.....	.....	67 25	.....	.....
Baden	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hesse	*3	528	3	.....	44	461	.....	.....	65 25	.....	.....
Mecklenburg	1	861	.....	.....	.....	.....	533	.....	.....	54 00	.....
Brunswick	*1	500	.....	.....	.....	.....	333	.....	.....	47 25	.....
Alsatia	2	936	.....	331	142	342	528	.....	67 25	81 00	.....
Customs Union, 1881–'82	†39	26,869	2,284	44,469	197	18,384	18,782	1,711	62 10	63 22	79 87
In fiscal year 1880–'81	†45	21,862	911	28,080	362	11,768	17,970	855	74 25	72 00	82 35

*Of these, two were not running.

†Of these, four were not running in 1881–'82 and seven in 1880–'81.

4.—Uses of starch sugar.

Both glucose and grape sugar find extensive application for a great variety of purposes as substitutes for cane sugar or for barley.

The most general purposes for which starch sugar is used are—

1. For the manufacture of table sirup. This consists of a nearly or quite colorless glucose, with a sufficient addition of the cane sirup from the sugar refinery to give it the flavor and appearance of a highly refined molasses. The quantity of cane sirup added varies from 2 per cent. up to perhaps 33 per cent.

2. As a substitute for barley malt in the brewing of ale or beer. This is really a substitution of Indian corn for barley; but it constitutes a very imperfect substitute, as the corn by the treatment employed in extracting its starch for conversion into glucose is completely deprived of all the nitrogenous bodies and mineral salts which it originally contained. Hence the glucose alone, which is simply transformed starch, is substituted for the entire barley grain with its great variety of valuable constituents. This is not true, however, of the maltose produced from the entire corn by the action of malt. This material contains all the soluble constituents of the corn, together with the additional substances which are rendered soluble by the action of the diastase of the malt.

3. As a substitute for cane sugar in confectionery.

4. For the adulteration of cane sugar, to which it is added to the extent of 20 or more per cent.

In the appendix will be found some analysis of commercial cane sugar.* Although the committee has the most positive evidence that grape sugar has at times been used to a considerable extent in adulterating cane sugar, yet the samples of commercial sugar which have been collected from time to time in New York City by the inspectors of the city and State boards of health have never shown any such addition.

5. As a substitute for cane sugar in canning fruits and in the manufacture of fruit jellies.

6. For the manufacture of artificial honey. This is neatly put up in glass jars containing a small piece of genuine honeycomb.

7. In the manufacture of vinegar.

8. In the manufacture of liquor coloring, used both in mixing liquors and in making artificial liquors.

9. Other more limited applications: In the manufacture of wine; by the baker in making cakes; in cooking, in the preparation of sauces; as an addition to some canned meats, especially corned beef; in the preparation of chewing tobacco; in the manufacture of printers' rollers, and in the manufacture of some kinds of ink.

The demand for glucose and grape sugar for these purposes is extremely variable, and depends on the relative prices of corn and of the

* See Appendix 3 of this report.

articles for which this kind of sugar is substituted, especially sugar-house sirup and barley.

III.—ON THE NATURE OF THE COMMERCIAL PRODUCTS.

1.—VARIETIES OF SUGAR.

Before giving the methods of analysis employed and the results obtained, it is desirable that the meaning of the names of the substances should be stated as clearly as possible, in order that those who are not chemists may be able to read the report understandingly.

Sugar is to the chemist a collective name. There are two classes of sugars, closely related to each other. Of one of them our ordinary cane sugar, as well as beet sugar, which is chemically identical with cane sugar, are examples. Of the other class, grape sugar, glucose or dextrose, the sugar of grapes and honey, is the principal example. Another example of the grape-sugar group is levulose. Dextrose and levulose have the same chemical composition, but different properties. The difference between them is especially marked in connection with the action upon polarized light. While the former (dextrose) turns the plane of polarization to the right, the latter (levulose) turns it to the left. Pure dextrose is stated to have about three-fifths the sweetening power of cane sugar.

When cane sugar is boiled with a dilute acid, as sulphuric or hydrochloric acid, it is converted into equal parts of dextrose and levulose, the mixture being called fruit-sugar.

The names "grape sugar," "glucose," and "dextrose," when used by a chemist, are meant to designate the same substance. In commerce, however, as already stated, the names "grape-sugar" and "glucose" have a somewhat different meaning, the former being applied to the solid and the latter to the liquid products.

One of the first problems which presented itself to the committee in the examination of the collected samples of grape sugar and glucose was the determination of their composition. Assuming that in the process of manufacture perfectly pure starch, acid, and water were used, that nothing foreign was introduced, and that the transformations were carried to the end, the product would be pure dextrose. But the conditions under which the manufacturers work permit of considerable variations in the composition of the products. In the first place, the transformation of the starch into dextrose may not be perfect. Indeed, if sulphuric acid be used to effect the transformation, it is impossible, even under the most favorable conditions, to transform more than 95 per cent. of the starch into dextrose. The extent of the transformation is dependent upon the strength of the acid, the temperature, and the time during which the heating is continued. The intermediate products are chiefly maltose and dextrin, which may be present in greater or smaller quantities, according to the way the process is carried out. If the product is to be used in the form of sirup, then the presence of dextrin

is objectionable, as it has no sweetening power, though it does not produce injurious effects upon the system. If it is to be used in the manufacture of beer, it should be borne in mind that dextrin does not undergo fermentation. Again, the products may be more or less contaminated by mineral substances, such as salts of lime, which are commonly used in the manufacture. Hence, in the analysis of our samples, we directed attention, first, to the substances formed by the transformation of the starch, and, second, to the accidental mineral impurities.

2.—ORGANIC CONSTITUENTS.

Many analyses of the commercial products have been made by others, but we have thought best to collect samples ourselves from some of the important factories of the country taken at random, and to have analyses made under our own supervision, for the purpose of ascertaining how nearly the various products met with in the market approach the same composition.

The samples collected, as stated in full in the first part of the report, were divided into the necessary number of parts and one part of each was forwarded to each member of the committee. The bottles and packages were simply numbered, and the members of the committee had no knowledge of the original source of the samples. In the results which will be given below the samples will be referred to only by their respective numbers. The estimations of the relative quantities of dextrose, maltose, and dextrin were made by Mr. A. G. Palmer, of the Johns Hopkins University, who used for the purpose a method suggested by H. W. Wiley (Chemical News, vol. 46, p. 175). The theory of the process may be stated in a few words. All three of the bodies present, viz, dextrose, maltose, and dextrin, are optically active, turning the plane of polarization to the right though not to the same extent, the specific rotatory power of dextrose being 52, that of maltose 139, and that of dextrin 193. Now, if a solution containing all three is examined with a polariscope the total rotation observed is due to the action of the three—

$$P = 52\,d + 139\,m + 193\,d' \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (1).$$

If the solution be treated with mercuric cyanide in excess, all the dextrose and maltose will be destroyed and only the dextrin left unchanged. If a second observation be now made with the polarizing apparatus, the rotation observed will give the quantity of dextrin present, for we have—

$$P' = 193\,d' \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (2),$$

from which the value of d', or the amount of dextrin, may be easily calculated. Subtracting (2) from (1) we have—

$$P - P' = 52\,d + 139\,m \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (3).$$

When a mixture of the three substances is treated with Fehling's solution the dextrose and maltose are reduced. The total reduction gives,

then, the reducing per cent. of the dextrose d, + that of the maltose m. Since maltose, however, has a reducing power as compared with dextrose of only 0.62, we have the equation—

$$R = d + 0.62\ m \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (4).$$

Multiply this by 52, which gives

$$52\ R = 52\ d + 32.24\ m,$$

and subtract from (3). This gives

$$P - P' - 52\ R = 106.76\ m \quad . \quad . \quad . \quad . \quad . \quad . \quad (5).$$

Whence

$$m = \frac{P - P' - 52\ R}{106.76} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (6)$$

$$d = R - 0.62\ m \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (7)$$

and

$$d' = \frac{P'}{193.}$$

For further details of the process reference is made to the paper by Wiley.

The copper solution used is made up in proportions stated below:

	Grams.
Copper sulphate	34.632
Sodium potassium tartrate	173
Potassium hydrate	125

The substances were dissolved in water and the solution diluted to one liter.

The mercuric cyanide solution used contained in 1 liter 120 grams mercuric cyanide and 25 grams of potassium hydrate. Twenty-five c. c. of this solution was sufficient for solutions containing not more than 65 per cent. of reducing substances, and 30 c. c. for solutions containing more than that amount.

The copper solution (10 c. c.) diluted with its own volume of water was in all cases contained in a small Erlenmeyer flask. After heating to boiling the sugar solution was run in and the whole again heated to boiling. For the first trial experiment, the sugar solution was added in small portions at a time until the blue color disappeared. The approximate amount of the sugar having thus been determined, several new titrations were made, the sugar solution being added all at once, until two successive titrations differing by 2 c. c. in the amount of sugar solution added, the first giving the copper reaction with potassium ferocyanide, and the second not giving it, were obtained.

Water was estimated directly by mixing the sample in a small porcelain dish with clean dry sand, and heating in an air bath for three

hours at 110°. In some cases, as of maize sirup, family sirup, and maltose sirup, three hours was found to be too long, as in that time the sample was largely converted into caramel.

TABLE I.

	1.	2.	3.	4.	5.	6.	7.	8.	9.
Per cent. reducing matter	48.5	43.6	42.7	39.3	....	41.2	73.8	87.3	93.2
Total rotation	20°.7	19°.7	21°.7	19°.33	....	21°.7	9°.7	9°.17	10
Rotat. after mercuric cyanide	11°.5	14°.9	16°.3	4°.33	....	15°.8	1°.65	0°.0	0°.0
Per cent. water	14.2	17.4	16.1	22.6	....	15.3	15.1	12.4	7.3

	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.
Per cent. reducing matter	99.37	....	74.2	74.2	41.0	72.1	41.9	39.0	37.2	40
Total rotation	10°.4	....	11°	11°.5	20°.66	11°	19°.5	20°.1	22°.33	18°.66
Rotat. after mercuric cyanide	0°.0	....	2°.5	3°.5	15°	3°.5	15°	16°	17°.5	12°.5
Per cent. water	0.62	....	17.5	14.0	19.2	16.6	20.6	19.3	17.2	17.0

TABLE II.

	1.	2.	3.	4.	5.	6.	7.	8.	9.
Per cent. dextrose	36.5	42.8	39.8	38.6	.....	36.5	72.7	87.1	93.2
Maltose	19.3	1.3	4.7	1.1	.....	7.6	1.8	.3	.....
Dextrin	29.8	38.4	42.1	38.8	.....	40.9	4.2	.....	.....
Water	14.2	17.4	16.1	22.6	.....	15.3	15.1	12.4	7.3
Total	99.8	99.9	102.7	101.1	.....	100.3	93.8	99.8	100.5

	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.
Per cent. dextrose	99.4	....	72.0	73.4	37.0	72.1	41.5	39.0	34.3	40.0
Maltose	.....	....	3.6	1.3	6.5	.....	.6	.....	4.6	.....
Dextrin	.....	....	6.4	9.1	38.8	9.1	38.8	41.4	45.3	32.4
Water	0.6	....	17.5	14.0	19.2	16.6	20.6	19.3	17.2	17.0
Total	100.0	....	99.5	97.8	101.5	97.8	101.5	99.7	101.4	89.4

For these samples, one and a half hours was found to be long enough. The figures obtained in each case were—

1. Percentage of reducing matter;
2. Total rotation;
3. Rotation after treatment with mercuric cyanide; and,
4. Percentage of water.

Nineteen numbered samples in all were sent for examination; of these, seventeen were analyzed, No. 5 being wanting in the lot as received, and No. 11 evidently being a sample of impure cane sugar. In Table 1 the figures are given as obtained, and in Table 2 the percentages of the constituents are given as calculated by the method given above.

Numbers 7, 8, 9, 10, 12, 13, and 15 were solids, the others liquids. Nos. 7 and 19 evidently contained considerable burnt sugar, to which fact the curious results obtained in the analysis are at least partly to be

attributed.* Nos. 8, 9, and 10 are specially pure specimens of grape sugar, and certainly do not represent the average composition of commercial grape sugar. As fair samples of commercial grape sugar, Nos. 7, 12, and 13 and 15 may be taken. In these, as will be seen, the amount of dextrose present is between 72 and 73.4 per cent., while the dextrin varies from 4.2 to 9.1 per cent.

As regards the liquid products, the so-called glucoses, it will be seen that the amount of dextrose present in them varies from 34.3 to 42.8 per cent., and the amount of dextrin from 29.8 to 45.3 per cent.

It should be said that the constituents thus far mentioned are of themselves not injurious when taken into the system, though, as above stated, the dextrin has no sweetening power, and hence it has no value as a constituent of table sirups or sugars.

3.—INORGANIC CONSTITUENTS.

The results obtained in the examination of the samples for mineral impurities are here given. The analyses were made by J. S. C. Wells, Ph. D. of the School of Mines of Columbia College:

Samples of starch sugar examined.

Mark.	Factory.	Water.	Ash.	Sulphuric acid (SO_3).	Chlorine.	Ferric oxide.	Lime.	Magnesia.	Alkalies.
No. 1. Glucose	A*	11.50	0.325	0.202	0.055	0.020	0.012	0.027	0.097
No. 2. Mixing sirup	A	17.15	0.370	0.177	0.060	0.015	0.008	0.023	0.140
No. 3. Glucose	B	12 18	0.520	0.039	0.255	0.030	0.066	0.005	0.157
No. 4. Mixing sirup	B	24.25	0.890	0.220	0.155	0.015	0.014	0.031	0.380
No. 6. Glucose	C	14.50	0.420	0.161	0.065	0.010	0.014	0.025	0.150
No. 7. Brewers' grape sugar	D	12.98	0.380	0.055	0.010	0.055	0.024	0.038	0.070
No. 8. Confectioners' grape sugar	D	10.00	0.140	0.091	0.010	0.025	0.025	0.007	0.017
No. 9. Cakes from centrifugal	D	4.20	0.220	0.139	0.020	0.035	0.035	0.023	0.016
No. 10. Anhydrous grape sugar	D	0.53	0.025	0.009	0.000	0.006	0.004	0.004	0.000
No. 11. Mixed grape and cane sugar	D	1.75	0.330	0.029	0.120	0.025	0.025	0.004	0.120
No. 12. Grape sugar	A	13.25	0.495	0.230	0.050	0.100	0.047	0.004	0.140
No. 13. Grape sugar	E	11.55	0.750	0.395	0.025	0.030	0.029	0.004	0.320
No. 14. Glucose	F	23.10	0.335	0.094	0.105	0.010	0.012	0.009	0.134
No. 15. Grape sugar	F	16.50	0.335	0.159	0.050	0.055	0.027	0.004	0.102
No. 16. Maltose	G	22.26	1.060	0.056	0.125	0.000	0.021	0.101	0.337
No. 17. Maize sirup	G	24.46	0.815	0.065	0.120	0.010	0.008	0.013	0.374
No. 18. Glucose	H	18.41	0.335	0.053	0.025	0.015	0.080	0.034	0.012
No. 19. Family sirup, mixed cane and grape	H	21.17	1.535	0.094	0.205	0.040	0.226	0.088	0.340

*The capital letters in this column are not the initials of the firms or factories from which the samples were taken; they simply indicate that samples having the same letter came from the same factory.

Careful research was made for tin, copper, and other metallic impurities, but none were found.

*No. 19 was a mixture of glucose and cane molasses, which accounts for the results of the analysis, the cane sugar present interfering with this method of analysis.

Sample No. 16 gave, when fermented, results which lead us to the belief that it contains a large amount of maltose and very little if any dextrose. From this and some other facts noticed in the course of the work, we conclude that the method of Wiley is not applicable to products containing any considerable percentage of maltose.

Sulphuric acid and chlorine were determined in the solution of the original samples, ten grains being used in each case. Oxide of iron, lime and magnesia were determined in the ash. The ash itself was determined by moistening 10 grains of the material with 3 or 4 c. c. of sulphuric acid, and then incinerating.

The French plan of deducting one-tenth from the weight of the ash for the sulphuric acid added was not, however, adopted.

To secure an approximate determination of the alkalies, the lime and magnesia were calculated as sulphates, and with the oxide of iron were subtracted from the total ash, the residue being counted as alkaline sulphates, and, divided by two. The result represents approximately the alkalies.

IV.—IS THE USE OF "GLUCOSE" OR "GRAPE SUGAR" INJURIOUS TO HEALTH?

This is certainly one of the most important questions that can be asked regarding the substance under consideration. It has been discussed very freely, but on a very insufficient basis of facts. Indeed, so far as the products made from corn starch are concerned, it appears that no experiments have ever been made with reference to their effects upon the system. It is essential in a discussion of this subject to keep clearly in mind the fact that while it is undoubtedly true that the pure chemical substances—dextrose, maltose, and dextrin—are not injurious, there may be other substances present in small quantities in the commercial products, and that these may be capable of producing injurious effects. Or it may be true that when the commercial products are changed by fermentation, substances of injurious character are formed or left unfermented.

In Germany, where large quantities of dextrose are made from potato starch, experiments bearing upon the question of the presence of injurious constituents have been made with the commercial products. Some of the results obtained indicate that after fermentation of potato sugar, there are left substances which are injurious, while others indicate that this is not true. Among those who have experimented on the subject, A. Schmitz, Nessler, and Freiherr von Mering should be specially mentioned. Schmitz (Beiträge zur diätetischen Beurtheilung des gallisirten Weins, Köln, 1878) fermented potato sugar, and, evaporating the products down to small volumes, administered known quantities of the residues to cats and dogs, and in a few cases to human beings. The results obtained were uniform, and showed that the substances caused sickness, as headache, sweating, and loss of appetite.

Later Nessler (Wochenblatt des Landwirthschaftlichen Vereins in Grossherzogthum Baden, 1880) undertook similar experiments and obtained similar results. He experimented upon his assistant and himself. One of his experiments is here described: He allowed a 20

per cent. solution of potato sugar to ferment after the addition of a small quantity of hops. After the fermentation was over the liquid was filtered, a liter evaporated down to a sirup, and then diluted up to 100 c. c. This solution had a disagreeable, bitter taste. Nessler took 50 c. c. of it at 7 a. m., and the same quantity at 10 a. m., each portion corresponding to 100 grams of potato sugar. Toward noon he began to feel uncomfortable, but not so much so that he could positively attribute his condition to the beer extract. At 2 p. m. the residue from 100 grams potato sugar was again taken, and now, in about an hour, there followed profuse perspiration and violent headache, both of which continued until night. A few days later his assistant took the residue from 90 grams sugar, the fermented liquor having been evaporated down to two-fifths its original volume. He soon experienced difficulty in breathing and broke out in a cold sweat; at dinner he had no appetite, and was obliged to throw up the little soup he did take. In the afternoon he had a violent headache, which continued until evening.

Nessler concludes his paper with these words:

It is, hence, beyond a doubt true that in the liquid obtained in the fermentation of potato sugar there are substances injurious to health. If the question is asked whether this is true of all commercial potato sugars, as well as of the sugar examined, we cannot give a definite answer.

In the case of all varieties of potato sugar thus far examined there remains, after evaporation of the fermented liquid, a bitter-tasting extract, which turns the plane of polarization to the right, and it is very probable that all of them may act injuriously upon the health in varying degrees, according to the greater or less purity.

As in buying the sugars it is not possible to determine whether the harmful substances are present or not, potato sugar should not be used for the preparation of beverages* until it can be prepared in perfectly pure form.

Directly opposed to the results of Schmitz and Nessler are those obtained by Freiherr von Mering (Deutsche Vierteljahrschrift für öffentliche Gesundheitspflege, Vol. 14, p. 325).

This writer experimented upon dogs, cats, rabbits, and human beings in much the same way as Schmitz and Nessler had done, and he concludes that the unfermentable residues from potato sugar are not at all objectionable.

Later Schmitz (Deutsche Vierteljahrschrift für öffentliche Gesundheitspflege, Vol. 14, p. 481) replied to Von Mering, upholding his first results.

It hence appears doubtful whether there are injurious substances in potato sugar, and it is highly desirable that the experiments on this subject should be repeated by those who have not thus far taken active part in the discussion. Even though it should eventually be shown that potato sugar is or is not objectionable, it would not necessarily follow that the same is also true of maize sugar.

As, so far as we know, no experiments had been made upon starch

*One of the uses to which potato sugar is put in Germany is as an addition to poor wine.

sugar, we carefully repeated the experiments described above, using several of the samples of glucose and grape sugar, the analysis of which are given in the preceding part of this report.

We were fortunate in securing for this work the assistance of Dr. J. R. Duggan, of the Johns Hopkins University, who has for some time past been occupied in experiments upon fermentation, and who is hence fully familiar with all the precautions necessary to secure reliable results. The fermentations were carried on in a new cellar which, fortunately, chanced to be available, so that the danger of abnormal fermentation was reduced to a minimum.

Pure glucose cannot be fermented by the simple addition of yeast in small quantity, for yeast, like all living matter, requires certain nitrogenous and inorganic materials for its own nourishment. As has been shown by Pasteur, this want may be supplied by the addition of certain salts, such as ammonium tartrate, calcium phosphate, etc., but as these cannot be added in exactly the necessary proportions, some would be likely to remain in the solution after fermentation was complete, and, if taken into the stomach along with the glucose residue, would probably produce an effect of its own which might be attributed to the glucose.

It is not easy to obtain in sufficient quantity a liquid furnishing a proper medium for the growth of yeast which does not also contain glucose; and, for this reason, it was first necessary to determine the effect, if any, of the unfermentable residue from this glucose.

Experiments Nos. 1, 2, and 3 were made for this purpose. The nutrient liquid used was barley wort, on account of the fact that it is most commonly used in brewing for commercial purposes.

This liquid contains much more nitrogenous matter than is necessary to support the yeast during its fermentation, and therefore it still forms a good medium for the growth and development of yeast after it is considerably diluted with a solution of glucose.

The method of experimenting was as follows:

The barley wort of the concentration usually employed for making beer was mixed with the glucose solution, and the whole heated to boiling by passing steam through a coil of block-tin tubing placed in the tub. The tube was then connected with the hydrant and water passed through it until the solution was well cooled. It was then allowed to flow slowly over a wide board for the purpose of thoroughly aerating it. The temperature was reduced to about 10° C. and about a pint of yeast added. Fermentation was carried on in a cool vault, and was allowed to continue until very little sugar was left in the solution and the yeast had all settled to the bottom of the tubs. A sufficient quantity of beer was then siphoned off and evaporated slowly over the water-bath to about one-tenth its volume. The residue consisted principally of dextrin, nitrogenous matter from the wort, glycerin, succinic acid, and probably other products of fermentation in very small quantities. It

formed a thick, dark-colored sirup of very disagreeable taste, especially when wort containing hops had been used. For this reason sweet wort was used in most of the experiments. All of the fermentations were carried on by the low process, that is, with bottom yeast at a temperature of from 8° to 10° C.

Two experiments were tried with the high process, but it was found to be impracticable on the small scale on account of the development of bacteria due to the higher temperature. As the difference in the two processes is essentially one of temperature only, there is no reason to suppose that they could in any way give different results.

The amount of yeast added to each tub was about one-half liter. This was carefully examined with the microscope both before and after fermentation, to guard against the presence of foreign ferments that might produce injurious products. The glucoses used were of the various manufactures already mentioned, and embrace the different grades of solid and liquid products.

The extracts were taken at different hours of the day, both before and after meals. The quantity usually taken contained the residue from 125 grams of glucose, but in Experiment No. 8 this quantity was increased so as to correspond to 200 grams. It seemed useless to try still larger quantities, for it is probable that if much more was taken the normal products of fermentation, such as succinic acid, would produce some effect.

EXPERIMENTS 1 AND 2.—Thirty liters of sweet wort and the same quantity of hopped wort were separately fermented, the process lasting in each case one week. Five liters of the resulting liquid were evaporated to 750 c. c., and 300 c. c. of the extract taken internally. The same experiment was tried by two individuals, but no effect was produced. The amount of extract taken corresponded to 2 liters of the beer.

EXPERIMENT 3.—In this experiment there were used 15 liters of sweet wort, to which were added 15 liters of a 12.5 per cent. solution of cane sugar. Five liters of the liquid were evaporated to 500 c. c., and 200 c. c. of the extract taken with no effect. The amount of extract taken represented 125 grams of cane sugar.

EXPERIMENT 4.—Fermented 15 liters sweet wort and 15 liters of a 12.5 per cent. solution of grape sugar (sample No. 12). Five liters of the liquid were evaporated to 500 c. c., and 200 c. c. taken. No effect was produced. On the following day the same amount of residue was taken and with no effect. The amount of extract taken corresponded to 125 grams of glucose in each experiment.

EXPERIMENT 5.—Fifteen liters of sweet wort and 15 liters of a 12.5 per cent. solution of grape sugar (sample No. 7) were fermented. The same amount of extract was taken as in the last experiment, with the same results.

EXPERIMENT 6.—The details of this experiment were exactly the same as those of the last. The substance was a commercial glucose (sample No. 14).

EXPERIMENT 7.—Fifteen liters of hopped wort, with 7.5 liters of a 25 per cent. solution of commercial glucose (sample No. 1), were fermented. Four liters of the fermented liquid were evaporated down to 400 c. c., and of the residue 150 c. c. were taken. No effect was felt.

EXPERIMENT 8.—Fifteen liters of hopped wort and 7.5 liters of a 25 per cent. solution of grape sugar (sample No. 13) were fermented. Five liters of the fermented liquid were evaporated to 500 c. c., and 200 c. c. taken. No effect was felt. The extract taken represented 160 grams of grape sugar.

The experiments described above occupied about two months, during which time Dr. Duggan repeatedly took large quantities of the extracts. At the end of the experiments, and during the entire period, his health continued excellent.

There was nothing whatever to indicate that the extracts contained anything injurious to health, and the conclusion seems to be fully justified that the samples examined by us, and which we have every reason to believe were fair average samples of the substances found in the market, contained nothing objectionable from a sanitary standpoint. In the experiments the experimenter took into his system everything that could possibly be objectionable contained in from 120 grams to 160 grams of the glucose or grape sugar, *i. e.*, from a quarter to one-third of a pound. It must be borne in mind, further, that the extract which was taken into the stomach must have contained any objectionable mineral, as well as organic substances, present in the glucose employed. Hence the results seem to be final as regards the injurious natures of glucose or grape sugar made from maize.

These experiments extended over a period of only about two months. On the question, therefore, whether any injurious effect would follow the continuous use of this material the committee has no information.

Our experiments have, of course, no direct connection with those of Schmitz, Nessler, and Von Mering, already referred to. These gentlemen experimented upon potato sugar as furnished by manufacturers in Germany. Our conclusions are valid only for maize sugar as furnished by manufacturers in this country.

It should be further remarked that although our experiments show conclusively that the products of fermentation of glucose are not dangerous to health, it does not necessarily follow that beer made by the fermentation of glucose is as good as that made in the usual way. That is a matter which does not fall within the scope of our investigation.

V.—SUMMARY AND CONCLUSION.

The results which have been obtained by the committee, and which have been presented in the foregoing pages, may be briefly summed up as follows:

1st. Starch sugar, as found in commerce, is a mixture in varying proportions of two sugars called dextrose and maltose, and of dextrin,

or starch gum. Dextrose was discovered in honey by Lowitz in 1792, and was first prepared from starch by Kirchhoff in 1811. In 1819 Braconnot prepared it from woody fiber. Maltose was first recognized as a distinct sugar by Dubrunfant in 1847, in the product of the action of malt on starch. No dextrose is thus produced, according to O'Sullivan.

2d. The process of making starch sugar consists, 1st, in separating the starch from the corn by soaking, grinding, straining, and settling; and, 2d, in converting the starch into sugar by the action of dilute sulphuric acid, this acid being subsequently removed by the action of chalk. To make the solid "grape sugar" the action is carried further than to make the liquid "glucose." After clarifying, the liquid is concentrated in vacuum pans and is decolorized with bone-black.

3d. The starch-sugar industry in the United States gives employment to 32 factories, having an estimated capital of $5,000,000, consuming about 40,000 bushels of corn per day, and producing grape sugar and glucose of the annual value of nearly $10,000,000. In Germany, in 1881–'82, there were 39 factories of this sort, consuming over 70,000 tons of starch, and producing about 40,000 tons of starch sugar.

4th. Starch sugar is chiefly used in making table sirup, in brewing beer as a substitute for malt, and in adulterating cane sugar. It is also used to replace cane sugar in confectionery, in canning fruits, in making fruit jellies, and in cooking. Artificial honey is made with it, and so, also, is vinegar.

5th. Starch sugar represents one distinct class of sugars, as cane sugar does the other, the former being obtained naturally from the grape, as the latter is from the cane and the beet. Starch sugar—which is a term chemically synonymous with dextrose and glucose—when pure has about three-fifths the sweetening power of cane sugar. By the action of dilute acids both cane sugar and starch yield dextrose. In the case of starch, however, dextrose constitutes the sole final product.

6th. The commercial samples of starch sugar obtained by the committee showed a fairly uniform composition on analysis. The liquid form, or "glucose," contained from 34.3 to 42.8 per cent. of dextrose, from 0 to 19.3 per cent. of maltose, from 29.8 to 45.3 per cent. of dextrin, and from 14.2 to 22.6 per cent. of water. The solid form "grape sugar" gave from 72.0 to 73.4 per cent. of dextrose, from 0 to 3.6 per cent. of maltose, from 4.2 to 9.1 per cent. of dextrin, and from 14.0 to 17.6 per cent. of water. Three specimens of especially prepared "grape sugar" contained 87.1, 93.2, and 99.4 per cent. of dextrose, respectively. The last of these was crystalline anhydrous dextrose.

7th. Of mineral or inorganic constituents, the samples of starch sugar examined contained only minute quantities. The total ash found in the "glucose" was only from 0.325 to 1.060 per cent.; and in the "grape sugars" only from 0.335 to 0.750 per cent. No impurities, either organic

or inorganic in character, other than those mentioned were detected in any of the samples examined.

8th. The elaborate experiments upon the fermentation of starch sugar would seem to be final on the question of the healthfulness, not only of glucose itself, but also of the substances produced by the action of a ferment upon it. Large quantities of a concentrated extract from the fermentation, representing from one-third to one-half a pound of starch sugar, were taken internally by the experimenter, and this repeatedly, without the slightest observable effect. This result, rigidly applied, holds, of course, only for those sugars which, like this, are made from the starch of Indian corn or maize.

In conclusion, then, the following facts appear as the result of the present investigation: 1st. That the manufacture of sugar from starch is a long-established industry, scientifically valuable and commercially important. 2d. That the processes which it employs at the present time are unobjectionable in their character, and leave the product uncontaminated. 3d. That the starch sugar thus made and sent into commerce is of exceptional purity and uniformity of composition, and contains no injurious substances. And, 4th, that though having at best only about three-fifths the sweetening power of cane sugar, yet starch sugar is in no way inferior to cane sugar in healthfulness, there being no evidence before the committee that maize starch sugar, either in its normal condition or fermented, has any deleterious effect upon the system, even when taken in large quantities.

All of which is respectfully submitted.

GEORGE F. BARKER,
Chairman.
WILLIAM H. BREWER,
WOLCOTT GIBBS,
CHARLES F. CHANDLER,
IRA REMSEN,
Committee.

APPENDIX 1.

CIRCULAR SENT OUT BY THE COMMITTEE.

BALTIMORE, ——— —, 1882.

SIR: At the request of the Commissioner of Internal Revenue of the United States, the undersigned have been appointed a committee of the National Academy of Sciences, for the purpose of making a scientific investigation of the various products which are obtained from starch, and known as glucose, grape sugar, maltose, &c., and of the processes used in their manufacture.

While giving full weight to the investigations which have already been made, the committee feel that it is desirable for them to reach their conclusions, as far as possible, independently, and hence they have decided to ask the assistance of the manufacturers in getting together the necessary information, and in taking samples of products for examination. As the investigation is in the interests of the manufacturers,

as well as of the public, we respectfully request that, as soon as convenient, you will forward to the Secretary answers to the questions to be found on the next page.

It is, of course, understood that, without special permission from you, no use will be made of the information you may give us, except in a general way, and without mention of the name of your firm.

Yours, respectfully,

G. F. BARKER, *Chairman*,
Professor University of Pennsylvania, Philadelphia, Pa.
W. H. BREWER,
Professor Yale College, New Haven, Conn
C. F. CHANDLER,
Professor Columbia College, New York, N. Y.
WOLCOTT GIBBS,
Professor Harvard College, Cambridge, Mass.
IRA REMSEN, *Secretary*,
Professor Johns Hopkins University, Baltimore, Md.

QUESTIONS SENT OUT BY THE COMMITTEE.

1. Please give as full a description as you may care to of the processes used in your factory. (Descriptions of machinery would not be of much use to the committee.)
2. What are the names and general properties of the products which your firm places on the market?
3. Will you give an agent authorized by us the privilege of taking samples of your products at your factory?
4. What information can you furnish regarding the capacity of your establishment, as shown by the consumption of raw material in 1881 and 1882? Is any other material used besides corn?
5. What is the principal use made of your products?
6. Please add the names and addresses of any firms known to you, and not included in the accompanying list.

APPENDIX 2.

The glucose and starch-sugar factories of the United States.

Location of factory.	Name of factory.	Name of firm.	Office of firm.
ILLINOIS.			
*Champaign	Champaign Grape Sugar Company.	Champaign Grape Sugar Company, Mr. Smith, president.	Champaign, Ill.
*Chicago	Eberts'	Eberts'	Chicago, Ill.
*Chicago	Chicago Sugar Refining Company.	Chicago Sugar Refining Company.	Chicago, Ill.
*Danville	Danville Refinery and Starch Works.		Danville, Ill.
*Freeport	Kings Co. Refinery	Veiller, Jayne & Co	Freeport, Ill.
*Geneva	Geneva Grape Sugar Company.	Geneva Grape Sugar Company.	Geneva, Kane County, Ill.
*Gladstone	Gladstone Refinery Sugar Company.	Gladstone Refinery Sugar Company.	Gladstone, Ill.
*Pekin	Richard & Gill	Richard & Gill	Pekin, Ill.
*Peoria	Peoria Grape Sugar Company.	Peoria Grape Sugar Company.	Peoria, Ill.
Peoria	Peoria Sugar Refinery	Peoria Sugar Refinery, C. J. Hamlin, president.	No. 19 West Swan street Buffalo, N. Y.
*Rockford	Rockford Grape Sugar Company.	Rockford Grape Sugar Company.	Rockford, Ill.
*Sagetown			Sagetown, Ill.

* Factories to which the Circular (Appendix 1) was sent. (See page 8.)

The glucose and starch-sugar factories of the United States—Continued.

Location of factory.	Name of factory.	Name of firm.	Office of firm.
IOWA.			
Davenport	Davenport Glucose Manufacturing Company.	Davenport Glucose Manufacturing Company.	Davenport, Iowa.
*Des Moines	Des Moines Sirup Refinery.	Des Moines Sirup Refinery.	Des Moines, Iowa.
*Iowa City	Iowa City Grape Sugar Company.	Iowa City Grape Sugar Company.	Iowa City, Iowa.
*Marshalltown	Grape Sugar Company	Grape Sugar Company	Marshalltown, Iowa.
KANSAS.			
Atchison			Atchison, Kans.
Leavenworth	Leavenworth Sugar Company.	Leavenworth Sugar Company, C. J. Hamlin, president.	No. 19 West Swan street, Buffalo, N. Y.
MICHIGAN.			
*Detroit	Michigan Sugar Company.	D. H. Howell, Sons & Co., agents.	Agents' office, 107 Wall street, New York.
MISSOURI.			
*Kansas City	Rochester Grape Sugar Company.	Rochester Grape Sugar Company.	Kansas City, Mo.
Saint Joseph	Saint Joseph Refining Company.	Saint Joseph Refining Company.	Saint Joseph, Mo.
*Saint Louis	Saint Louis Sirup Glucose and Grape Sugar Company.	Saint Louis Sirup, Glucose, and Grape Sugar Company.	Saint Louis, Mo.
NEBRASKA.			
Omaha			Omaha, Nebr.
NEW YORK.			
*Buffalo, Scott street and Hamburg Canal.	American Grape Sugar Company.	American Grape Sugar Company, C. J. Hamlin, president.	No. 19 West Swan street, Buffalo, N. Y.
*Buffalo, Court street	Buffalo Grape Sugar Company.	Buffalo Grape Sugar Company, C. J. Hamlin, president.	No. 19 West Swan street, Buffalo, N. Y.
*East Buffalo, Jefferson street, near William.	The Firmenich Sugar Refinery Company.	The Firmenich Sugar Refinery Company.	No. 22 West Seneca street, Buffalo, N. Y.
*Glen Cove, Long Island.	Glen Cove Manufacturing Company.	Glen Cove Manufacturing Company.	298 South street, New York City.
*New York City, 132 King street.	Booth & Edgar's Factory.	Booth & Edgar	100 Wall street, New York City.
421 West Fifteenth street.	Manhattan Sugar Company (limited).	Manhattan Sugar Company (limited).	421 West Fifteenth street, New York City.
OHIO.			
*Tippecanoe City	Grape Sugar Company	Grape Sugar Company	Tippecanoe, Miami County, Ohio.
Toledo			
WEST VIRGINIA.			
Wheeling	Fell's Sirup Factory	Fell, A. C.	Wheeling, W. Va.

* Factories to which the Circular (Appendix 1) was sent. (See page 8.)

In response to this circular very full communications were received from the following manufacturers:

J. A. Cunningham, Danville Refining and Starch Works, Danville, Ill.

George Turner, secretary and treasurer Geneva Grape Sugar Company, Geneva, Ill.

W. H. H. Ammack, superintendent Gladstone Grape Sugar Company, Gladstone, Ill.

Dr. F. H. Kimball, chemist Rockford Grape Sugar Company, Rockford, Ill.

Louis P. Best, superintendent Davenport Glucose Manfacturing Company, Davenport, Iowa.

H. B. Leavens, secretary Des Moines Sirup Refinery, Des Moines, Iowa.

W. J. Allen, superintendent Iowa City Grape Sugar Company, Iowa City, Iowa.

J. D. Hayes, vice-president Michigan Grape Sugar Company, Detroit, Mich.

George B. Emmons, president Saint Louis Sirup, Glucose, and Grape Company, Saint Louis, Mo.

The Firmenich Sugar Refining Company, Buffalo, N. Y.

Harry Hamlin, vice-president Buffalo Grape Sugar Company, Buffalo, N. Y.; vice-president of the American Grape Sugar Company, Buffalo, N. Y.; vice-president of the Peoria Sugar Refining Company, Peoria, Ill.; vice-president of the Leavenworth Sugar Company, Leavenworth, Kans.

Hiram Duryea, vice-president Glen Cove Manufacturing Company, Glen Cove N. Y.

Augustus Talbot, Manhattan Sugar Company (limited), New York.

The Grape Sugar Company, Tippecanoe City, Ohio.

A. C. Fell, Fell's Sirup Factory, Wheeling, W. Va.

Valuable information was also received from the following:

Arno Behr, Ph. D., Chicago, Ill.

Waldron Shapleigh, Freeport, Ill.

Albert L. Colby, Ph. B., inspector New York State board of health.

S. D. Phelps, New York.

Edgar Tucker, New York.

APPENDIX 3.

EXAMINATION OF COMMERCIAL SUGARS WITH REFERENCE TO THEIR ADULTERATION WITH STARCH SUGAR.

A.—*Analyses of sugars purchased in open market.*

Sixteen samples of brown sugars were bought in the open market at various groceries. Four of these were found to contain aboot 30 per cent. of grape sugar. It is impossible to determine with accuracy the amount of grape sugar present in a sample of adulterated cane sugar for the reason that the brown cane sugars always contain invert sugar which gives reactions indentical with those of grape sugar. The amount of invert sugar present varies, but may reach as much as 5 per cent., and perhaps more. If, however, in examining a specimen of cane sugar there should be found evidence of the presence of, say, from 20 to 30 per cent. of a sugar giving the reactions of grape sugar, the conclusion would certainly be justified that the latter had been ad

In our examinations the first test applied in every case was the treatment of the sample with luke-warm water. If no grape sugar is present the sample dissolves up quickly. If it is present in considerable quantity there remains behind for some time undissolved a quantity of matter consisting of white, chalky-looking particles.

For the purpose of estimating the quantity of grape sugar present in the adulterated samples two methods were used:

1. The well-known method of Fehling, with the precautions and modifications suggested by Allihn (Journal für Praktische Chemie, vol. 130, page 46), and

2. The method of Sachsse, modified as directed by Heinrich (Chemisches Centralblatt, 1878, p. 409).

For the Fehling-Allihn method, dissolve 173 grams sodium potassium tartrate and 125 grams potassium hydrate in water, and dilute so as to make 500 c. c. Also dissolve 34.6 grams copper sulphate in water and make up to 500 c. c. Keep the two solutions separate, and only bring them together when needed for immediate use.

For a determination, 30 c. c. of each of the solutions are brought together, and 60 c.c. water added. The whole is then heated to boiling. Twenty-five c. c. of a sugar solution which must not contain more than 1 per cent. sugar, are then added, and the whole heated on a water-bath for fifteen minutes. The precipitate is collected in an asbestos filter, washed with alcohol and ether, and a current of dry air drawn through.

When dry, the suboxide of copper is reduced to copper in a current of hydrogen. The whole filter (tube and asbestos), together with the copper, is now weighed, and the weight of the copper found by deducting the weight of the filter previously taken. The weight of sugar corresponding to the weight of copper found can be taken from Allihn's table (loc. cit., pp. 63–65).

For the preparation of the Sachsse-Heinrich solution, 18 grams pure mercuric iodide, 25 grams potassium-iodide, and 10 grams potassium hydrate are dissolved in water, and the volume made up to 1 liter. The proportion of potassium hydrate here used is much smaller than that used by Sachsse, which was 80 grams. A portion of the solution prepared in the above way, boiled for thirty minutes with 20 per cent. solution pure cane sugar, failed to give the slightest evidence of the reduction of the mercuric iodide. Forty c. c. of this solution were found by titration with standard solutions of pure grape sugar and invert sugar to correspond to .128 gram dextrose and .119 gram invert sugar.

Twelve of the sixteen samples collected did not contain more than 5 per cent. of sugar having an action in the solutions employed in the examination. Some of the details of the analysis of one of the adulterated samples, and the figures obtained in the analysis of two other adulterated samples, are here given.

Sample 1.—Ten grams of the sample were dissolved in 109 c. c. distilled water. Ten grams of this solution were then diluted up to 100 c. c., so that in the weaker solution there was 1 gram of the substance in 100 c. c. of the solution. The amount of this solution necessary to reduce 40 c. c. of the previously standardized solution of mercury iodide was now determined. It was found to be 39.3 c. c. But 40 c. c. of the mercurie iodide solution are equivalent to 0.128 gram of dextrose (pure grape sugar). Therefore, in 0.393 gram of the sample there is 0.128 gram dextrose—an amount which corresponds to 32.9 per cent. This conclusively shows that the sample contained somewhere in the neighborhood of 30 per cent. of grape sugar.

This result was confirmed by the aid of the Fehling-Allihn method. Ten c. c. of the same sugar solution as that used in the preceding estimation were added to 60 c. c. of Fehling's solution. The cuprous oxide was collected on an asbestos filter, reduced to metallic copper, and weighed. The weight of copper thus found was 0.0633 gram. This corresponds to .03235 gram dextrose (grape sugar), or, in 0.1 gram of the sample there was 0.03235 gram of grape sugar. This is 32.35 per cent. of the whole, while by the Sachsse-Heinrich method the amount found was 32.8 per cent.

In *Sample* 2 the Sachsse-Heinrich method indicated the presence of 33.6 per cent. of dextrose, while the Fehling-Allihn method gave 33.8 per cent.

In *Sample* 3 the former method gave 26.3 per cent. and the latter 26.9 per cent. dextrose.

A fourth sample gave results similar to those just described, and was undoubtedly adulterated.

While the figures given cannot be regarded as accurate, they show beyond a doubt that the samples examined were largely adulterated. Whether the amount of grape sugar present is exactly stated or not, there was certainly present as much as 20 per cent. and probably somewhere between 30 and 40 per cent. If the samples examined had consisted of pure cane sugar mixed with pure grape sugar the figures obtained would have varied only very slightly from the truth. But in fact neither the cane sugar nor the grape sugar was pure, and we cannot tell what allowance to make for the impurities. There may have been as much as 5 per cent. of a reducing sugar, like grape sugar, in the cane sugar originally used. There could hardly have been much more. Subtracting this amount (5 per cent.) from the total found in the first adulterated sample, there remain about 27 per cent. of reducing sugar which must have been intentionally added. But this figure represents only the amount of *reducing sugar* added, and not the total quantity of substance added. Now, as has been shown in an earlier part of this report, the commoner grades of commercial grape sugar contain only about 70 to 75 per cent. of reducing sugar, so that in order to add to a cane sugar 25 per

cent. of a reducing sugar we should have to add a considerably larger amount of commercial grape sugar, say, about 33 per cent. Hence it appears probable that the adulterated samples examined by us contained about 33 per cent. of grape sugar.

B.—*Extracts from Board of Health Reports.*

[Extract from the Report of A. L. Colby, Ph. B., to the Sanitary Committee of the New York State Board of Health in 1881. Second Annual Report of the Board, p. 604.]

Although, as we have just seen, the sugars of to-day are free from insoluble mineral adulterations, the use of glucose as an adulterant is practiced to a considerable extent. The result of the examination of the 116 samples for the presence of artificial or added grape sugar or glucose is given in the following table:

Grade of sugar.	Number examined.	Unadulterated.	Adulterated with glucose.
Cut loaf	7	7	.....
Granulated	4	4	.....
"A"	5	5	.....
Powdered	33	33	.....
Light-brown, "Extra C"	49	46	3
Brown, "C"	10	9	1
Dark-brown, "X"	8	8	.....
Total	116	112	4

This table shows that the white sugars are all unadulterated. But the brown sugar (especially light brown coffee sugar "Extra C") is the variety in which this sophistication is practiced. As the table shows, of the sixty-seven samples examined, four were found adulterated, and to a large extent, as may be seen by the following analysis:

No. of sample.	Character of sugar.	Per cent. of added glucose.	Per cent. of total glucose.
705	Brown "C"	22.20	Undetermined.
706	Light brown "Extra C"	21.24	26.522
707	Light brown "Extra C"	29.79	32.834
708	Light brown "Extra C"	33.36	35.878

All colored sugars contain more or less "fruit" or "invert sugar," which is a mixure of equal parts of dextro-glucose and levoglucose. This is produced from the cane sugar in the process of manufacture. The artificial glucose, used as an adulterant, is dextro-glucose made from starch.

These so-called "mixed sugars" are sold in the wholesale market under certain trade names, such as "new process sugar," "Niagara A, B, C," "Harlem B," "Excelsior C," &c., which signify to the purchaser their character. They are, however, usually disposed of in the retail trade as pure sugar. As most of these "mixed sugars" are sent to the country, they are rarely to be found in the hands of retail city grocers.

A review of other recent investigations of sugar proves the general use of glucose as an adulterant. From the six annual reports on the adulteration of food in Canada* the following tabular statement of the results has been compiled:

SUGARS ANALYZED.

Date of report.	Number of sugars analyzed.	Genuine.	Adulterated with glucose.	Doubtful.
First report, 1876	15	12	3	.....
Second report, 1877	34	30	4	.....
Third report, 1878	42	34	8	.....
Fourth report, 1879	101	31	9	11
Fifth report, 1880	55	55	.....	.....
Sixth report, 1881	63	63	.....	.....
Total	310	275	24	11

An investigation of seventy-five samples of sugar, made in 1879 by the Massachusetts State Board of Health, Lunacy, and Charity,† shows the presence of an undue excess of glucose in three cases.

The recent investigation of sugars, made by Dr. Charles Smart, under the direction of the National Board of Health,‡ shows the very general use of glucose as an adulterant. "Among forty-seven brown sugars, most of which were furnished by dealers who knew that their samples would be examined, there were found three which contained glucose; while among thirty-eight samples purchased for analysis, no less than nine were thus adulterated. The glucose varied from a small admixture to 30 per cent."

APPENDIX 4.

EXTRACTS FROM THE JOURNAL LITERATURE RELATING TO STARCH SUGAR, CHRONOLOGICALLY ARRANGED.

[Prepared by E. J. HALLOCK, Ph. D.]

KIRCHHOFF'S DISCOVERY OF STARCH SUGAR.

[Prof. John (1812). Schweig. J., IV, III.]

The author learns through Nasse that Kirchhoff was trying to make a cheap gum, and produced sugar instead. From 100 pounds starch, N. & K. got 90 pounds solid grape-like sugar, or 120 pounds of very sweet sirup.

It is a peculiar kind of sugar, resembling grape sugar, but better.

Nitric, hydrochloric, sulphuric, and oxalic acids produce it; but tartaric, acetic (?) and phosphoric do not.

PREPARATION OF STARCH SUGAR.

[Schrader (1812). Schweig. J., IV, p. 108.]

Author repeated Kirchhoff's experiment. The latter employed 1 part acid and 400 of water to 100 of starch, and boiled 36 hours. Schrader used more acid and boiled 9 hours, and got a sweeter product. He compares the operation to the manufacture of ether.

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* Report on the adulteration of food, being supplement No. III to the report of the Department of Inland Revenue.

† First Annual Report State Board of Health, Lunacy, and Charity of Massachusetts, 1879, page 60.

‡ National Board of Health Bulletin Supplement No. 6, January 1, 1881.

CONVERSION OF STARCH INTO SUGAR.

[Pfaff (1812), in Schweig. J., V, p. 94.]

Author repeated Kirchhoff's experiment in glass retort, and found no CO_2 or SO_2 evolved, hence the conversion is not oxidation, nor does it resemble germination which yields CO_2. He does not compare it with ether-making, because the circumstances differ. He calls it killing the starch, and compares it to potatoes that get sweet under the influence of cold.

CONVERSION OF STARCH INTO SUGAR.

[Vogel (1812), in Schweiger's J., V, p. 80.]

The author first asserts that no chemist had yet made sugar by chemical means until Kirchhoff, in St. Petersburg, made a gummy and sugary substance by acting on starch with sulphuric acid.

The author repeated Kirchhoff's experiments, using 40 grams of acid in 8 kilograms of water (1-200) for 2 kilograms of starch. He obtained an equal weight of sirup containing varying quantities of sugar and gum. The latter was insoluble in alcohol, but did not form gummic acid when acted on by nitric acid. He believes that the acid withdraws the elements of water from the starch. (See also Gilbert's Ann., XLII, p. 123.)

ON THE SWEETNESS OF STARCH SUGAR.

[Gehlen (1812). Schweig. J., V, p. 42.]

This author repeated Kirchhoff's experiment, and described the product as yellowish, soluble in 1½ parts water; gives a white precipitate with oxalates, none with H_2S $(NH_4)_2S$, KCy, or tincture of galls. Only experience can tell whether it is wholesome, but probably is so (p. 41). Does not form caramel when heated, and melts easily. In sweetening power 2½ or 2⅓ equals 1 of cane sugar. Its price must be proportionately lower than cane sugar to compete with it. The sirup irritates the throat like honey, which it closely resembles.

WAS STARCH SUGAR A FRENCH DISCOVERY?

[De Gassicourt (1812), in Schweig. J., V, Beilage; Moniteur, No. 150.]

In 1801 Fourcroy obtained a sugary substance by passing chlorine into a solution of gum, or starch suspended in water.

Parmentier, in his Pharmacopeia, p. 361, says he formed sugar from starch by the action of cream of tartar 30 years ago.

Schweiger adds a note that nearly upsets all this author says.

ACTION OF THE GLUTEN IN CONVERTING STARCH INTO SUGAR.

[Kirchhoff (1814). Schweig. J., XIV, 389. Read in St. Petersb. Acad., Sept. 1, 1812.]

The author deduces the following conclusions from his experiments:

1. Gluten causes the formation of sugar in germinated seed and in the meal which has been soaked in hot water.

2. The starch in germinated grain is unchanged, and is first converted into sugar (at a temperature above 40° R.) by the gluten.

3. The starch in the flour is to be considered as the best material for making alcohol.

4. In germination the gluten acquires the power of saccharifying more starch than the grain contains.

5. The production of sugar in germinated seeds is a chemical process and not the result of vegetation.

6. In wort the starch is in the sweet form, and infusion of galls does not affect it.

DECOMPOSITION OF STARCH BY WATER.

[Saussure (1819) Ann. Chim. Aug., 1819; Schweig. J., XXVII, 320.]

When starch and water are exposed to a temperature of 20 or 25° C., with or without access of air, there are formed—

1. A kind of sugar similar to that made by the action of acid.
2. A kind of gum similar to roasted starch.
3. A substance here called Amidin between gum and starch in properties.
4. A substance as insoluble in boiling water and several acids as woody fiber, but is blued by iodine.

Also other products.

SUGAR FROM OLD LINEN.

[Braconnot (1819). Ann. Chim. Phys. Oct., 1819, p. 172; Schweiger's J., XXVII, 337.]

Twenty-four grams old dried linen was first converted into gum by 34 grams sulphuric acid, diluted, the unchanged fiber (3.6 grams) filtered out, then boiled two hours, and saturated with carbonate of lime. Basic acetate of lead gave no precipitate. The solution was evaporated and heated until it smelled of burnt sugar. Yield was 23.3 grams from 20.4 of linen. It was diluted to a sirup, and in twenty-four hours began to crystallize. It has a pleasant, pure, and rather cooling taste. It is capable of fermentation.

CONVERSION OF CANE SUGAR BY PECTINE.

[Le Roy (1832). Ann. Ch. Pharm., VIII, 297; J. de Chim. Med., VIII, 597.]

Author boiled the juice of ripe currants, apricots, strawberries, &c., before fermentation, with 1½ parts of cane sugar; in a few months the sugar was all converted into grape sugar. This was not the case when the juice had fermented beforehand.

Chevallier had already made a similar observation.

Le Roy's experiments go to prove that the inversion is caused by the pectine.

PRODUCTS FORMED FROM STARCH BY DIASTASE.

[Payen & Persoz (1833). Ann. Chim. Phys. (2), LIII, 73.]

The starch is entirely changed into two bodies, an uncrystallizable sugar and a gum, the sum of whose weights equals that of the starch.

BEER FROM STARCH SUGAR.

[Lampadius (1833). J. pr. Ch. XVI, 375; Pharm. Centrl., 1833, 351.]

Author prepared a very good beer from starch sugar, with extract of hops, yeast, and some white of egg. After lying three weeks it was clear, sparkling, and of very pleasant flavor.

PREPARATION BY MEANS OF DIASTASE.

[W. A. Lampadius (1834), in J. pr. Ch. II, 457.]

Four pounds potato starch and 24 pounds water boiled to a paste in a tinned copper cylinder. Kept ten hours at 42–47° R. after putting in half pound of barley malt coarsely ground in a coffee-mill. No change, as the malt was five weeks old. With fresh malt the paste became a thin liquid in 10 minutes but not very sweet, but sweetness increased for eight hours. No blue color with starch. Yield of 4 pounds 13 loth of transparent sirup, sp. gr. 1.280. In taste it differs somewhat from that made with sulphuric acid.

SUGAR OBTAINED FROM STARCH BY MEANS OF DIASTASE.

[Guerin-Varry (1835). Ann. Chim. Phys. (2) LX, 54.]

It is white, odorless, less sweet than cane sugar, crystallizes in cauliflower crystals sp. gr. 1.3861. Heated for an hour at 100° loses 9.8 per cent. of its weight of water.

At 23°.5 63½ parts dissolve in 100 of water; is a little less soluble than grape sugar, 100 parts yield 42.288 of CO_2 and 44.28 of alcohol. That made by the action of acids has the same composition as that made by diastase, and as grape sugar.

COMPOSITION AND PREPARATION OF STARCH SUGAR.

[C. Brunner (1835) Pogg. Ann., XXXIV, 319; Ann. Ch. Pharm. XIV, 303.]

Author refers to the contradictory views of Saussure and Converchel; also Guerin, Guilbourt, Raspail, Biot and Persoz.

Brunner's experiments gave for the composition of pure potato starch—

	I.	II.	III.	Average.
C	44.373	44.672	43.242	44.095
H	6.316	6.360	6.756	6.477
O	49.311	48.968	50.002	49.428

From 100 parts of this starch he obtained 106.82, 108.82, 106.238, 106.239, 106.711; average, 107.01 of dry sugar. He then made the Na Cl compound and found an average of 13.522 per cent. Na Cl. Calloud found 8.3 per cent. in that made from urine-sugar 25 per cent. in that from grape sugar.

MANUFACTURE OF STARCH SUGAR.

[Bouchardat (1836), in J. pr. Ch. VII, 83.]

1. It is better to use but little acid and let it act a long time, until alcohol gives no precipitate.
2. Must saturate at once when done.
3. Steam better than open fire.
4. Avoid too much lime, as it blackens and destroys the sugar. The best char is that from Prussian-blue factories.

MANNA SUGAR IN STARCH SUGAR.

[Fremy (1836), in L'Institut; Abst. in J. pr. Ch. VIII, 197.]

Fremy prepared the starch sugar with care in the usual manner, crystallized it once, and treated it with alcohol.

From the solution he obtained manna sugar in crystals, hence it is not a product of fermentation, but being infermentescible remains in the fermented sirup.

MANNITE FROM STARCH SUGAR.

[Fremy (1836) Inst. Pharm. Centrl., 1836, 686.]

Author obtained mannite by treating a starch sugar (made with sulphuric acid) with alcohol. Hence it is present in the starch sugar and not formed from it by fermentation. Being incapable of fermenting, it remains unchanged in fermented liquors.

COST AND VALUE OF STARCH SUGAR.

[J. pr. Ch. XI, 185, 1837.]

A "wispel" of potatoes makes 500 pounds of green starch; 250 pounds of this starch will make 1 hundred-weight of dry sugar, worth, in Berlin, 13 or 14 thalers ($10.50).

The waste is used for fodder, and covers the expense of fuel, labor, &c.

Starch sugar is used by bakers and brewers, and to improve wines, to make artificial wines and liquors, and the cost of manufacture is 4 groschen (3 pfennigs) per 100 pounds of patatoes. 100 pounds of potatoes are worth 16 to 18 groschen (40 to 45 cents).

FORMULA FOR STARCH SUGAR.

[Peligot (1838). C. R., VI., 232; J. pr. Ch. XIII, p. 380; J. pr. Ch. XIV, p. 84.]

He made a barium, lead and Na Cl compound and deduced these formulas:

Crystallized sugar	$C_{48}H_{42}O_{21}, 7H_2O$
Sugar dried at 100°	$C_{48}H_{42}O_{21}, 3H_2O$
Saccharate of baryta	$C_{48}H_{42}O_{21}, 3BaO, 7H_2O$
Saccharate of lead	$C_{48}H_{42}O_{21}, 6PbO$
Salt and sugar	$C_{48}H_{42}O_{21}, Cl_2Na, 5H_2O$
Salt and sugar, dried at 130°	$C_{48}H_{42}O_{21}, Cl_2Na, 3H_2O$

DECOMPOSITION OF GRAPE SUGAR BY PEROXIDE OF LEAD.

[A. Stürenburg (1839). Ann. Ch. Pharm., XXIX, 291.]

The oxide of lead was stirred into water and heated to boiling, then the sugar added until the brown color had nearly disappeared. Carbonic acid was evolved, and an odor of formic acid noticed; carbonate of lead alone remained.

One atom sugar forms 4 atoms water.

One atom sugar forms 2 atoms CO_2.

One atom sugar forms 2 atoms formic acid.

One atom sugar forms 8 atoms of the three.

Cane sugar suffered a similar change, but more slowly.

ACTION OF CONCENTRATED SULPHURIC ACID ON STARCH SUGAR.

[Peligot (1839). Ann. Ch. Pharm., XXX, 78.]

If 1 part crystallized starch sugar is melted in a water bath and 1½ part concentrated sulphuric acid added slowly with cooling, an acid is formed which forms with oxide of lead a white salt. Author calls it saccharo-sulphuric acid (Zuckerschwefelsaure).

DIGESTION OF STARCH.

[J. Vogel (1841). Valentine's Rep., 1841, 293; Pharm. Centrl. 1842, 48.]

The author thinks that the fact observed by Leuchs and confirmed by Huenefeld, that saliva is able to convert starch into sugar, is of little consequence in digestion, because unchanged starch is often present in the stomachs of men and animals.

FERMENTABILITY OF THE SUGARS.

[H. Rose (1841.) Pogg. Ann. LII, 293; Ann. Ch. Pharm., XL_2 324.]

If equal weights of cane and grape sugar are dissolved in equal parts of distilled water, and small but equal quantities of yeast added, at 20° C., the former begins to ferment at once, and in a few days it is finished. The latter can be kept for months at 25° or 30°. To bring both into equal fermentation seven or eight times as much yeast must be put in the cane sugar solution as the excess is required to convert it into grape sugar. Grape sugar is the only directly fermentescible substance, and cane sugar is more easily converted into grape sugar than any other vegetable substance, and this is best accomplished by tartaric acid or argol.

OPTICAL PROPERTIES OF SUGARS.

[Ventzke (1842). J. pr. Ch. XV, 65.]

Describes his polarizing apparatus (illustr.) and its uses.

Fruit sugar, uncrystallizable sugar, always turns to the left. It is found in sweet fruits (grapes), and honey is formed from other sugars by acids, from cane sugar (and probably milk sugar) by the action of ferments.

Grape sugar, in urine, in solid honey, action of acid or diastase on amylon, acids on cane sugar, in many sweet fruits.

A table is given for ten sugars, showing the rotation in tube 234 millimeters long.

INFLUENCE OF WATER AND HEAT ON SUGAR.

[Soubeiran (1842). Jour de Pharm., 1842, pp. 1 and 89; J. pr. Chem., XXVII, p. 298.]

His experiments proved the stability of crystallized grape sugar under the influence of water and heat and of acetic acid; but it is easily decomposed by alkalies.

Uncrystallizable (inverted) sugar is decomposed by acetic acid and by alkali.

Optical tests employed.

GLUCOSE FERMENTATION.

[Bouchardat (1846). Ann. Chim. Phys; Ann. Ch. Pharm., LIX, 90.]

Diastase acts most powefully on starch paste, but is not the only thing which will convert starch into dextrin and glucose. He gives a list of these substances, such as yeast, germinated grain, membranes, &c.

Effect of reagents on the action of diastase: Nitric, sulphuric, phosphoric, hydrochloric, oxalic, tartaric and citric prevent the action of diastase entirely. Fixed alkalies also prevent it; also chlorine and bromine. Sulphate and acetate of copper and corrosive sublimate prevent; calomel not. Neutral chlorides of calcium, barium, stron_tium, and ammonium do not. Sulphate, acetate, borate, phosphate, and iodide slightly check it. Alkaloids have little influence. Alcohol, ether, essential oils, and creosote have no effect.

CONVERSION OF CANE SUGAR INTO A SUBSTANCE ISOMERIC WITH CELLULOSE.

[Tilley & Maclagan, Phil. Mag., 1846; Ann. Ch. Pharm., LX, 263.]

When the mixture of sugar, water, tartaric acid, and etherial oils used for lemonade stands a long time it forms a thick, sticky substance of the same composition as cellulose.

ON GLUCOSE (MALTOSE).

[Dubrunfaut (1847). Ann. Chim. Phys., XXI, 178; J. pr. Ch., XLII, p., 425, 1847.]

Dumas gives this name to different sugar-like products that crystallize in worts. Those from fruit, honey, or diabetic urine, or made by the action of acid on starch or wood fiber, are identical.

When made by the action of malt on starch it has a greater rotary power. It seems to crystallize in rhombohedra, is less soluble in alcohol, and less affected by alkalies. It is converted into glucose by boiling with acids.

GLUCOSE.

[Dubrunfaut (1847). Ann. Chim. Phys., 1847, p. 1879; Ding. J., CVII, 358.]

Glucose made by action of malt on starch is less soluble than that from grapes, and less affected by boiling with water or alkali. Its rotatory power is three times as great, but changes with the time. If boiled long enough with sulphuric acid, forms a sugar identical with grape sugar. It is the first product of the action of acids on starch and the end product of the action of glutinous nitrogenous materials.

Jacquelin and Biot's starch sugar with double rotation is a mixture of two kinds of glucose with single and triple rotation.

DETECTION OF STARCH SUGAR IN CANE SUGAR.

[Chevallier (1848). J. Chim. Med., Mar. 1848; Ding. J., CVIII, 319.]

20.0 grams water.
10.0 grams sugar.
0.5 grams caustic potash.

Heat in a porcelain dish on the open fire.
Cane sugar turns greenish-yellow.
Mixed sugar turns coffee brown.

DETECTION OF ADULTERATIONS OF SUGAR WITH GLUCOSE.

[Reich (1848). J. pr. Ch., XLIII, p. 71.]

Evaporate and add concentrated H_2SO_4 in slight excess; filter; add $BaCO_3$; filter, and if dilute H_2SO_4 gives a precipitate there was sulpho-saccharic acid formed.
Another test is potassium bichromate; also cobaltic nitrate.

COMPOSITION OF HONEY.

[Soubeiran (1849). J. Pharm. Chim., XVI, p. 252; J. pr. Chem., XLIX, p. 65.]

Honey consists of three kinds of sugar.
The first is krümel sugar.
The second is a liquid sugar, similar to that made by the action of acid on cane sugar, but has nearly twice its rotatory power to the left.
The third can be inverted, but turns light to the right.

INVERT SUGAR, HONEY, AND RAISINS.

[Dubrunfaut (1849). C. R., XXIX, 51; Ding. J., CXII, 387.]

1. Sugar made from cane sugar by acids or ferment is a mixture of equal equivalents of crystallizable grape sugar, $C_{12}H_{12}O_{12}$, and an uncrystallizable sugar of the same composition; rotates to the left, &c.
2. Honey, when fresh, contains varying quantities of cane sugar, all being in the liquid part; it disappears in time under the action of a natural ferment. Characteristic flavor due to substances developed by the alcoholic fermentation. Contains 20 to 30 per cent. glucose. Every honey contains a large quantity of fruit sugar, also an excess of glucose or other dextra-rotatory sugar. Its purgative properties are due to the liquid sugar.
3. The dextro grape sugar on raisins is due to decomposition of the fruit sugar, from fermentation, insects, &c.

ACTION OF WATER ON SUGAR.

[Maumené, C. R., 1854, XXXIX, 422; Ding. J., CXXXV, 59.]

1. The purest cane sugar dissolved in pure water is gradually changed into uncrystallizable sugar, even in the cold.
2. Heat favors this change.
3. Glucose and gum suffer no change.
4. This change takes place in the beet itself.
5. Organic acids do not perceptibly aid it.
6. The effect of the water must be taken into account in the analysis of sirups, &c.
7. Soubeiran's table (C. R. ———), Ding. J., CXIX, p. 146, cannot be employed.
8. The binoxide of potassium is not reliable (Ding. J., CXXV. 292). Dextrin is not always present in commercial glucose.
9. Caustic potash is not infallible, for most sugars are browned by it.
10. Hence it is necessary to measure the actual quantity of crystallizable sugar by crystallizing over lime or sulphuric acid.

FRUIT SUGAR FROM VEGETABLE MATTERS.

[Melsens, Genie ind., 1855, p. 106; Ding. J., CXXXVIII, 426.]

The author uses leaves, straw, rags, chips, twigs, and residues from breweries, distilleries, &c., by heating in a lead-lined autoclave with water containing 2 to 5 per cent. of acid. Also lets them soak in acidified or alkaline water previous to treatment, *or lets* them putrefy, as in the old way of making paper.

ADULTERATED GLUCOSE.

[L. Gall. Polyt. Notiz., 1856, No. 4; Ding. J., CXXXIX, 468.]

Author says that there was in the market a sort of grape sugar, sold at 8 thalers per cwt., for "improving wine," which imparts to the wine a bad taste.

Test.—Dissolve in warm water; then cover the vessel and boil; on removing the cover a vile odor is noticed. Pure glucose gives no odor.

ON THE USE OF THE WORD GLUCOSE.

[Biot (1856), in C. R., XLII, 351; J. pr. Ch., LXVIII, 429.]

This word was originally used for starch sugar only, and should not be applied to all solid sugars, or to subjects differing in chemical, physical, and crystallographic properties. Three different sugars made from starch:

No. 1, rotatory power of 51.13 right.

No. 2, rotatory power of 1.54 right.

No. 3, rotatory power of 100.57 right.

CHANGE IN THE ROTATORY POWER OF GLUCOSE.

[Bechamp (1856). C. R. XLII, p. 896, 1856, J. pr. Ch. LXIX. 433.]

The change is attributed to a gradual conversion of crystallized into uncrystallizable sugar.

He also concludes that there are two definite modifications of anhydrous starch sugar, $C_{12} H_{12} O_{12}$. One of these melts easily at 100°, and has a rotation of nearly 57°.3 which is unchangeable. The other does not melt at 100°, has a variable rotation which tends to approach (with the time) 57°.3.

CONVERSION OF MANNITE AND OF GLYCERIN INTO A TRUE SUGAR.

[Berthelot (1857). C. R. XLIV, 1002, J. pr. Ch. LXXI, 507.]

Various substances will produce this change, but only one will do so regularly at all times, viz, the membrane of a testicle (man, cock, dog, or stallion).

Formation of *Penicillium glaucum* is a hindrance.

ACTION OF WATER ON CANE SUGAR.

[Bechamp (1859). C. R., XLVI, p. 44; Ding. J., CXLIX, 207.]

A solution of cane sugar in pure water kept 17 months and changed from 22° to 1°.5 in rotatory power, and mold formed. When creosote or corrosive sublimate were added, it lost none of its rotatory power. A solution in boiled distilled water, protected from the air, sufferered no change.

Cold water alone cannot invert cane sugar; the conversion is due to a sort of fermentation.

PREPARATION AND PROPERTIES OF GLUCOSE.

[E. F. Anthon (1859). Ding. J., CLI, 213.]

1. *Percentage of water.*—Anhydrous glucose dried at 100° C., is $C_{12} H_{12} O_{12}$. Ordinary air dried (krümelige) is $C_{12} H_{12} O_{12} + 2$ H O. Author has prepared hard crystallized glucose, which contains $C_{12} H_{12} O_{12} +$ H O.

2. *Solubility in water.*—One hundred parts of water dissolves 81.68 parts of the anhydrous sugar at 15° C; or 89.36 parts of the sugar with one molecule water; or 97.85 parts of the sugar with two molecules water of crystallization.

3. *Action of acid on starch.*—Not all the starch has been converted into glucose when the iodine and alcohol tests give no reaction; that is no time when there is nothing but grape sugar in solution.

4. *On the purity of commercial grape sugar and its tests.*—Author determined percentage of foreign matter by the specific gravity of the saturated solutions and gives table.

GRAPE SUGAR FROM WOODY FIBER AND CELLULOSE.

[J. Pelouze, C. R., Feb. (1859). Ding. J., CLI, 394.]

Author found that when wood fiber is boiled a long time in water acidified with hydrochloric or sulphuric acid it is converted into sugar. Paper, old linen, sawdust, etc., are also converted into sugar.

SUGAR FROM GLYCOGEN OF THE LIVER.

[Berthelot & De Luca (1856). C. R. XLIX, 213, J. pr. Ch. LXXXI, 188.]

The sugar was made by the action of dilute H Cl on glycogen from a rabbit's liver. It was combined with Na Cl to form 2 C_{12} H_{12} O_{12} 2 H O Na Cl which is identical with that which grape sugar forms.

ON THE CONVERSION OF STARCH INTO GRAPE SUGAR AND DEXTRIN.

[F. Musculus (1860). Ann. Chim. Phys., 283, Ding. J., CLVIII, 424.]

1. Diastase has no action on dextrin.
2. Grape sugar and dextrin appear simultaneously and in constant proportions. 1 : 2.
3. Dilute acid acts like diastase.
4. Here too dextrin and sugar both appear together.

CONVERSION OF AMYLACEOUS SUBSTANCES INTO GLUCOSE AND DEXTRIN.

[F. Musculus (1860). C. R., L., 785, J. pr. Ch. LXXXV, 243.]

Author does not think the starch is first converted by dilute acid into dextrin and then hydrated to form glucose.

1. Diastase does not act on dextrin.
2. Glucose and dextrin appear simultaneously and always in the same relative proportions, 2 : 1.
3. At first diastase acts like dilute acid, but its action continues after the starch has disappeared, but acts very slowly then.
4. Dextrin and glucose appear in the same proportions whether diastase or glucose is used.

1. After iodine produces no blue color, and alcohol no precipitate, there is still unfermentable dextrin present in considerable amount.
2. One minute's boiling with acid has no effect on dextrin, but inverts all the cane sugar.
3. A large quantity of starch passes into beer in the form of dextrin.
4. There is great loss in making alcohol from grain by use of diastase = two-thirds loss.

CONVERSION OF STARCH INTO SUGAR.

[T. Musculus (1860). C. R. LIV., 194; Ding. J., CLXIV, 150; Reply to Payen in C. R. LIII, 1217.]

Under the influence of sulphuric acid starch splits up into dextrine and sugar, absorbing water, just as fats take up water and split into glycerine and fatty acids.

All glycosides do the same.

SOLUBILITY OF PURE GRAPE SUGAR IN ALCOHOL.

[E. F. Anthon (1860). Ding. J. CLV, 386.]

The sugar was perfectly pure and contained but 0.2 per cent of water. At 14° R. = 17 ½° C. one part of sugar dissolves in—

50.54 parts alcohol of..... 0.837
11.34 parts alcohol of..... 0.980
5.25 parts alcohol of..... 0.919
2.07 parts alcohol of..... 0.950

The solubility is not proportional to the amount of water in the alcohol.

At the boiling point—

100 parts alcohol 0.837 dissolves 21.7 sugar.

100 parts alcohol 0.880 dissolves 136.7 sugar.

1 part sugar dissolves in 4.6 of alcohol at 0.837

1 part sugar dissolves in 0.73 of alcohol at 0.880.

After standing standing six days 2.9 parts sugar were held in solution by 100 of alcohol of 0.837 and 12.4 in solution by 100 of alcohol of 0.880.

ON THE SUGAR IN ACID FRUITS.

[H. Buignet (1860). C. R. LI, 894; J. pr. Ch. LXXXVI, 493.]

Cane sugar is usually present in acid fruits, and during the ripening is gradually inverted. In ripe fruits there is either a variable mixture, as in pine apples, apricots, peaches, apples, pears, etc., or it consists entirely of invert sugar, as in figs, currants, and grapes. The cause of difference does not depend on the acidity, but seems to result from a nitrogenous body that acts like a ferment.

PRODUCTION OF DEXTRIN AND GLUCOSE FROM STARCH.

[A Payen (1861). C. R. LIII, 1217; Ding. J. CLXIV, 144.]

1. Author obtained 51 to 83.6 per cent. glucose in three and one-half to five hours with 3 per cent. sulphuric acid.
2. Obtained 34 per cent. sugar from commercial dextrin under like conditions.
3. Hydrochloric acid more active than sulphuric producing 62½ to 85½ per cent. glucose.
4. Fiber of wood yields glucose (hence alcohol) and a fiber suitable for paper, when treated with hydrochloric acid.
5. After the glucose had been removed from a mixture of the same with dextrin, the latter was easily saccharified by diastase.
6. Beer yeast will not ferment dextrin.
7. Starch paste yielded 52.7 per cent. sugar with diastase—not 87.9.
8. When the maximum yield is obtained the sirup will not crystallize.
9. Starch cannot be converted into dextrin by diastase without forming sugar.
10. Diastase will act below 10°.5 or zero C.
11. Found 0.31 per cent. gypsum in sirup, 0.50 in glucose sugar.

ACTION OF OZONE ON GLUCOSE.

[Gorup-Besanez (1863). Ann. Ch. Pharm, CXXV, 211.]

A solution of grape sugar is not perceptibly changed by ozone until potash or soda, or even carbonate of soda, is added. When the action is ended nothing remains but carbonic acid and formic acid.

Cane sugar is oxidized far more slowly in alkaline solution, but yields the same products.

ACTION OF NITRIC ACID ON LEVOGLUCOSE.

[Hornemann (1863). J. pr. Ch. LXXXIX, 301.]

The pure levoglucose was made from inulin by long boiling in dilute nitric acid. This sugar was purified, and polarized strongly to the left.

After acting on it with nitric acid sp. gr. 1.40 it was entirely converted into racemic acid (traubensäure) which is inactive.

ACTION OF DIASTASE ON STARCH.

[A. Payen (1865). Ann. Chim. Phys., 1865, p. 286, Ding. J. CLXXVIII, 69.]

1. Author has proved that diastase acts on dextrin and is able to partially convert it into grape sugar (krtimel).

2. Diastase acting on starch can produce dextrin and grape sugar in varying proportions within the limits of 17 to 50 per cent. or more of sugar in the total product.

3. In making alcohol from grain, all of the starch excepting a few per cent. is gradually converted into sugar and alcohol.

ACTION OF WATER AND NEUTRAL SALT SOLUTIONS ON CANE SUGAR.

[W. L. Classen (1868). J. pr. Ch. CIII, 449.]

1. Cane sugar is gradually changed into glucose by pure water at ordinary temperatures without perceptible mold.

2. Some salts like gypsum, potassium nitrate, &c., prevent this inversion; sulphate of magnesia retards.

3. If left in contact with these salts for several days, then heated to 70° R. a few hours, rapid inversion occurs.

4. If the heating to 70° is done as soon as they are mixed this inversion does not take place, except with gypsum.

5. Experiments can only last a few days as it begins to mold.

His results contradict those of Bechamp regarding the action of pure water.

MALTINE.

[Dubrunfaut (1868). Les Mondes, XVI, 317, Ding. J., CLXXXVII, 491.]

Author applies this name to the active substance precipitated from malt extract by tannin.

It is more active than diastase.

Malt contains 1 per cent. of this substance.

It is nitrogenous like albuminoids, rotates light to the left, and is injured by heat and chemicals.

It is precipitated by 87 to 97 per cent. alcohol.

It is best prepared by extracting the malt cold, or at 30° C., with four or five parts of water, repeat, then add sumach, tanning liquid, or other astringent.

Press in linen bags.

WHY DILUTE SUGAR SOLUTIONS FERMENT BETTER THAN CONCENTRATED ONES.

[J. Wiesner (1869). J. pr. Ch. CVI, 252.]

The rapid withdrawal of water from yeast cells kills all except the younger, undeveloped cells. The effect of very concentrated solutions is to withdraw water from the cells and injure them.

The activity of the yeast depends on the imbibition of water by the protoplasm of the cell and is in inverse proportion to the concentration of the sugar solution.

PROPORTIONS OF LEVULOSE AND DEXTROSE IN INVERTED SUGARS.

[Maumené C. R. (1869) LXIX, 1008; J. pr. Ch. CVIII, 315.]

Author found 12.14 per cent. dextrose, 87.86 per cent. levulose; total 100.

The two were separated by combining the dextrose with sodium chloride and evaporating until it crystallized. Can also be separated by spreading the invert sugar that has been dried at 100° C., on a plate of gypsum.

Author does not think this dextrose identical with that from urine.

ESTIMATION OF GLUCOSE, ETC.

[C. H. Gill (1871). Berl. Ber. IV, 283.]

Basic acetate of lead when used to decolorize the liquid has a perceptible effect on the rotatory power of the levulose, but not of dextrose.

PRODUCTION OF LACTIC ACID FROM SUGAR WITHOUT FERMENTATION.

[Hoppe-Seyler (1871). Berl. Ber. IV, p. 346.]

One pound of grape sugar and one-half liter caustic soda sp. gr. 1.34, diluted with one-half liter water, heated in a large retort to 96°. Violent reaction set in and temperature rose to 116°, without evolution of gas. The product contained lactic acid.

CONVERSION OF GLUCOSE INTO DEXTRIN.

[Musculus (1872). Berl. Ber. V, 648.]

If grape sugar is dissolved in cooled, concentrated sulphuric acid, then alcohol added and left in a cool place, a white substance slowly separates, which exhibits the properties of dextrin, but has double the rotatory power of grape sugar.

ACTION OF SALIVA ON STARCH.

[H. A. Smith (1873). Sugar Cane, V, 448.]

Author's experiments prove that the saliva of an infant, four or five months old, has no action whatever on insufficiently cooked arrow root, but healthy adult secretion has considerable transforming power but the sugar is carried into lactic acid.

Healthy adult saliva entirely transforms well boiled starch in the shortest space of time, while infant saliva causes no change for ten minutes.

Infants can only transform 12 per cent. of starchy food in two hours, and even this is changed into injurious lactic acid.

MALTOSE.

[E. Schulze (1874). Berl. Ber. VII, 1048.]

The author's results resemble those of O'Sullivan. The diastase was precipitated from an aqueous extract of malt by alcohol, and mixed with starch paste at 60°. The saccharine liquid was evaporated to small volume and alcohol added. The precipitate resembles dextrin. The solution was decanted, evaporated to a sirup, and boiled with strong alcohol. When cold the clear solution was poured off and allowed to evaporate over sulphuric acid. It separated as a syrup, but afterwards turned to a mass of crystals.

A SUBSTANCE ISOMERIC WITH SACCHAROSE.

[Gautier (1874). Bull. Soc. Ch. (2) XXII, 145; Berl. Ber. VII, 1549.]

A new substance incapable of fermentation ($C_{11}H_{23}O_{11}$), made by the action of gaseous hydrochloric acid upon a cooled alcohol solution of grape sugar. It is a white substance resembling dextrin, of bitter taste, soluble in water and alcohol, dextrorotatory, and reduces copper solutions.

Heated with water to 160° forms asugar, $C_6H_{12}O_6$ that will not ferment, but reduces Fehling's solution.

CONVERSION OF GLUCOSE INTO LACTIC ACID.

[Maly (1874). Berl. Ber. VII, 1567.]

When a dilute solution of cane, grape or milk sugar, or dextrin is kept at 20 to 40° C., and chopped mucous membrane of swine stomach added, lactic acid is formed, and by neutralizing it from time to time, taking care never to made it alkaline, acid will continue to form as long as any sugar remains. It was identical with lactic acid from fermentation, but contained some sarco or para lactic acid. The proportions varied. It is attributed to an organized ferment in the dead tissue. Living stomachs he says, cannot convert carbo-hydrates into lactic acid.

CONVERSION OF SUGAR INTO LACTIC ACID.

[Gay-Lussac (1874). C. R. Ding. Jour. LXXIV, 80.]

Author refers to Fremy's preparation of lactic acid by means of the membrane of a calf's stomach, and says it seemed to be a purely organic action. Lactic acid is produced in large quantity when sugar is in contact with a large quantity of nitrogenous organic matter at a temperature of 30 or 40° C. Lactic acid is often formed when a vegetable substance is in contact with an animal one.

INVERT SUGAR.

[Maumené (1875). Berl. Ber. VIII, 698.]

Author thinks that invert sugar is a mixture of glucose with a levulo-rotatory sugar which he calls chylariose and a neutral or inactive sugar. The relative proportions vary with the conditions of inversion and other treatment.

UNFERMENTIBLE BODY IN GRAPE SUGAR.

[Neubauer (1875). Berl. Ber. VIII, 1285.]

An average of thirteen analyses of commercial grape sugars showed 18 to 20 per cent. of a substance that does not ferment and rotates more strongly to the right than pure grape sugar. It is not dextrin, but an unknown body between sugar and dextrin.

After fermenting a 10 per cent. solution of grape sugar with fresh beer-yeast filtering and evaporating, a brown sirup remains having a repulsive taste.

ACTION OF SALIVA ON STARCHES.

Leuberg and Georgiewsky (1876). Berl. Ber. IX, 76.]

Other circumstances being the same, it takes less time to convert potato starch into sugar than cornmeal, rice, or wheat starch. Soluble starch is like potato starch.

INACTIVE GLUCOSE.

[Müntz (1876). Berl. Ber. IX, 351.]

Author found in sugar cane that had been kept a long time an uncrystallizable glucose that was inactive toward light. It ferments slowly. Also found mannite.

DEXTRIN IN COMMERCIAL STARCH SIRUPS.

[Fr. Anthon (1876). Ding. J., CCXIX, 437.]

A sample of Bohemian sirup consisted of—	Per cent.
Grape sugar	48.3
Levulose sugar	6.2
Dextrin	25.5
Water	20.0

A French sirup consisted of—	
Grape sugar	30.1
Levulose sugar	5.0
Dextrin	48.0
Water	16.9

A German sirup contained no dextrin and 50 per cent. sugar.

ACTION OF DIASTASE AND DILUTE SULPHURIC ACID ON STARCH.

[Musculus and Gruber (1879). C. R. LXXXIX, p. 1459; Berl. Ber. XII, 287.]

Substances formed are as follows:

Soluble starch; red with I	rotat. $\alpha = 218°$; red = +	6
Erythrodextrine; red with I		
Achroodextrine α, colorless I	rotat. $\alpha = 210°$; red =	12

Achroodextrine β.....rotat. $\alpha = 190°$; red = 12
Achroodextrine γ.....rotat. $\alpha = 150°$; red = 28
Maltose, $C_{12}H_{22}O_{11} + H_2O$.....rotat. $\alpha = 150°$; red = 66
Glycose, $C_6H_{12}O_6 + H_2O$.....rotat. $\alpha = 56°$; red = 100

NATURE OF THE INACTIVE GLUCOSES IN CRUDE CANE SUGAR AND MOLASSES.

[Gayon (1879). C. R. LXXXVI, 407; Berl. Ber. XII, 371.]

If pure *Mucor circinelloides* is put in a liquid containing cane sugar, and a mixture of glucose and levulose in such proportions as to neutralize each other, so that the rotation is due to the cane sugar, the rotatory power will decrease gradually (inversion) to a certain point, and then increase to the original value. In the fermentation of invert sugar the glucose is destroyed before the levulose. Gayon added this mucor to cane sugar containing inactive glucose, and observed the same effect, showing the inactive glucose has split into dextro and levulo-glucose.

CAUSES OF THE INVERSION OF CANE SUGAR AND DECOMPOSITION OF GLUCOSE.

[Durin (1879). C. R. LXXXVI, 754; Berl. Ber. XII, 371.]

There are three factors that effect the partial change of cane sugar in glucose, viz, temperature, quality of the water and of the air.

If solutions of pure sugar and of sugar with 2, 3, 8 to 60 per cent. glucose are exposed for 30 or 40 hours to a temperature of 70° or 75°, while the alkalinity is maintained by the addition of a thousandth part of potassic hydrate, none of the sugar is converted into glucose. If the solution is kept at this temperature for 75 to 114 hours, the alkalinity disappears, and inversion begins. The optical activity of the glucose solutions is decreased and the alcoholic fermentation is slower and less perfect.

CONVERSION OF STARCH INTO SUGAR BY DIASTASE AND CARBONIC OXIDE.

[Baswitz (1879). Berl. Ber. XII, p. 1827.]

Some kinds of starch cannot be converted into sugar by diastase without the aid of carbonic acid, but other kinds can. Probably the latter are less pure than the former, the impurity supplying the place of the carbonic acid.

Pressure has no effect.

Best temperature is between 45° and 55° (near 50°). Above 60° very little sugar is formed; at low temperature the sugar forms more slowly, but finally reaches the same quantity.

Concentration.—More sugar is formed when more concentrated, but not a larger per centage referred to the quantity of starch.

MALTO-DEXTRIN.

[Herzfeld (1879). Berl. Ber. XII, 2120.]

Author found that when diastase acts on starch the best results are obtained below 65° C. Above that point there is, in addition to maltose, another substance formed which dissolves in weak alcohol but is not crystallizable. Rotatory power $\alpha = 173.4$ to 169.9. He calls it malto-dextrin. He made the acetyl compound.

SUGAR FROM STARCH.

[Allihn (1880). J. pr. Ch. XXII, p. 46; Berl. Ber. XIII, 1761.]

The conversion is more rapid and more complete the stronger the acid, the longer it acts, and the higher the temperature. Up to 40 or 50 per cent. the conversion is portional to the time, but afterwards slower. Maximum yield 94.5 per cent.

ANHYDROUS DEXTROSE.

[Behr. (1882). Berl. Ber., XV, 1104.]

Shows that when the solidification of the concentrated sirup is produced by dropping in fragments of anhydrous dextrose instead of the hydrate ordinarily used, the resulting mass is crystalline and consists solely of anhydrous dextrose. For the best result the solution should not contain more than 12 to 15 per cent. of water, and the dextrose present should constitute 85 per cent. of the total solid matter. The temperature should be from 30° to 35° C. If the sirup contain as much as 98 per cent. dextrose the anhydrous product often separates spontaneously. When freed from sirup by the centrifugal, anhydrous dextrose resembles cut sugar closely, its sweetening power being to that of cane-sugar as 1:1½.

REPORT ON GLUCOSE—Continued.

APPENDIX 5.

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[Prepared by E. J. HALLOCK, Ph. D.]

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1823	do	Converting potato starch into sugar.	Mem. Soc. Roy. d'Ag., 1823, 146; Gill's Tech. Repos. Sept. 1824; Dingl. J. XV, 239.
1824	Clerget	Analysis of saccharine bodies by polarized light.	A. c. p. (2) XXVI, 175.
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1825	Weinrich	In making starch sugar heat above 100° C.	Hesperus, 263; Dingl. J. XVIII, 384.
1826	do	Report on method by Daclin	Bull. Soc. d'Enc. XXV, 233.
1827	Braconnot	From 1 pound rags got 36 loth sugar.	Ann. Mens. Ap. 103; Dingl. J. XXV, 81.
1827	Prout	Ultimate composition of the sugar of honey same as that of starch sugar.	Phil. Trans. XXVII, 369; A. c. p. (2) XXXVI, 366; Schweigg, LIII, 339; J. de Pharm. XIV, 232; J. Techn. Ch. II, 181.
1828	Lampadius	Wine from starch sugar	J. Techn. Ch. I, 381.
1829	Leuchs, J. C	Book entitled "Die verbesserte Stärkezuckerbereitung, ein vortheilhafter Gewerbszweig für Landwirthe, etc., 8vo., Nuremberg, 1829.	
1829	Leuchs	Experiment on making starch sugar with acid.	J. Techn. Ch. V, 193.
1829	Mollerat	Crystallized starch sugar	Bull. Techn. Jan., 1829; J. Techn. Ch. V, 109.
1830	Lampadius	Starch sugar in wine	J. Techn. Ch. VIII, 397.
1830	Boullay	Converting cane into grape sugar with acid.	J. de Pharm. 1830, 171; Pharm. Centr. 1830, 151.
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1832	Zier	Action of starch on must	J. Techn. Ch. X, 93; Pharm. Centr. 1832, 544.
1832	Guérin	Gum arabic converted into a non-fermentescible sugar by dilute acid.	A. c. p. (2) XLIX, 258, 266; Pharm. Centr. 1832, 653.
1832	Günther & Lindner	Starch and grape sugar before the blow-pipe.	Buchner's Rep. XLI, 54–116; Pharm. Centr. 1832, 288.
1832	LeRoy	Transformation of grape sugar	J. de Ch. Méd. VIII, 597; Pharm. Centr. 1832, 851.
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1833	Biot & Persoz	On the changes effected in gum and starch by acids.	Instit. XIII, 437; A. c. p. (2) LII, 72; Pharm. Centr. 1833, 356; (in full) Pogg. XXXII, 160.
1833	Lampadius	Good beer made with starch sugar.	J. Techn. Ch. XVI, 374; Pharm. Centr. 1833, 357.
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1833		Cost and profits of starch sugar	G. Preuss, H. G. Zeit, 1833, 332; Pharm. Centr., 1834, 14.
1834	Edwards & Collin	Germination of plants	Revue Méd., 1834, April; Pharm. Centr., 1834, 798.
1834	Lampadius	Preparation of starch sugar wine from black currants.	J. Pr. Ch., II, 114, 299, 460.
1834	do	Preparation of starch sugar by diastase.	J. Pr. Ch., II, 457.
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1834	Dumas	A sample of starch sirup laid before French Academy.	J. Pr. Ch., I, 78.
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1835	do	Glucose and sodium chloride.	A. C. P., XIV, 316; XXXI, 195.
1835	Döbereiner	Alcohol solutions of both sugars precipitated by ether.	A. C. P., XIV, 245; Pharm. Centr., 1835, 770.
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1835	Malaguti	Action of dilute acids upon sugar	A. c. p. (2), LIX, 407; Dingl. J., LIX, 62; C. R., I, 59.
1835	Payen	Note on Guérin-Varry's memoir	A. c. p. (2), LX, 441.
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1856	Dubrunfaut	Birotatory power of "Krämel" sugar (glucose mamelone) and milk sugar.	C. R., XLII, 228; 739; 901; Instit., 1856, 161; J. Pr. Ch., XLII, 425; J. Pr. Ch., LXVIII, 422; LXII, 438; Pharm. Centr., 1856, 233; J. B., 1856, 640.
1856	Gall	Improved method of neutralizing with aid of acetic acid.	Gall's Prakt. Mitth., I, 149; Pharm. Centr., 1856, 80; Pol. Centr., 1856, 62; Dingl. J., CXXXVIII, 239; Wag., 1855, 199.
1856	do	An intentionally adulterated glucose with bad odor.	Pol. Notizbl., 1856, 367; Dingl. J., CXXXIX, 468.
1856	Graham, Stenhouse & Campbell.	Percentage of sugar in coffee	Quar. J. Ch. Soc., IX, 23; J. Pr. Ch., LXIX, 188.
1856	Siegle	Preparation of pure grape sugar from honey.	J. Pr. Ch., LXIX, 148; Ch. Centr., 1856, 960; Pol. Centr., 1856, 206; J. Pharm. (3), XXXI, 240; J. B., 1856, 638; Wag., 1856, 225.
1856	Völcker	Saint John's bread contains 41.2 per cent. grape sugar.	Dingl. J., CXLVI, 390.
1856	Von Kobell	Crystalline form of the compound of grape sugar and sodium chloride.	J. Pr. Ch., XXVIII, 489; J. Pr. Ch., LXIX, 218.
1856	Wicke and Listing	Quantitative determination of sugar in diabetic urine.	J. Pr. Ch., LXVII, 134; A. C. P. XCVI, 87; 93.
1858		Extent of the starch sugar industry in Germany.	Pol. Centralblatt, 1856, No. 14.
1857	Anthon	Making crystallized glucose	Dingl. J., CXLVII, 76; Ch. Centr., 1858, 205; Pol. Notizbl., 1858, 120; J. B., 1858, 658; Wag., 1858, 328; J. B., für. Pharm., IX, 250.
1857	Berthelot	Alcoholic fermentation	C. R., XLIV, 702; LX, 29; J. Pr. Ch., LXXI, 321; A. c. p. (3) L, 222.
1857	do	A peculiar sugar from mannite and glycerine.	C. R., XLIV, 1002; J. Pr. Ch., LXXI, 507; A. c. p. (3) L, 369.
1857	do	Compounds of saccharine substances with tartaric acid.	C. R., XLV, 268; Inst., 1857, 283; J. Pr. Ch., LXXIII, 157; A. c. p. (3) LIV, 74; J. Pharm. (3), XXXIII, 95; Ch. Gaz., 1857, 441; J. B., 1857, 506.
1857	Bernard, Sanson and Figuier.	Formation of sugar in the liver	C. R., XLIV, 578; 1150; 1213; 1221; 1323; 1525.
1857	Böttger	New reagent for grape and cane sugar (bismuth).	Pol. Notizbl., XII, 97; Dingl. J., CXLIV, 368; J. Pr. Ch., LXX, 432; N. Rep. Pharm., VI, 132; Ch. Centr., II, 704; J. B. d. Phys Verein. Frankf., 1855–6.
1857	Böttger	Sugar test in albuminous urine	Dingl. J., CXLVII, 317.
1857	Carton and Parsons	Conversion of cane into fruit sugar for making alcoholic liquors by means of acid.	Jour. of Arts, 1857, 212; Dingl. J., CXLVI, 317.
1857	Hoppe	Influence of cane sugar on digestion and nutrition.	Virchow's Archiv., X, 144; Ch. Centr., 1857, 33.
1857	Pelouze	Influence of free alkali on fermentation of starch and urine sugars.	Cosmos, X, 390; Dingl. J., CXLIV, 319.
1857	Schiff	Amount of copper reduced by grape and milk sugars.	A. C. P., CIV, 330; J. Pr. Ch., LXXIII, 314.
1858	Balling	Grape sugar	Dingl. J., CXLVII, 78; Pol. Centr., 1858, 349.
1858	Béchamp	Conversion of cane sugar into fruit sugar by water and different solutions.	C. R., XLVI, 44; Pol. Centr., 1858, 595; Dingl. J., CXLIX, 307; A. c. p. (3), LIV, 28; Pol. Centr., 1858, 595.
1858	Berthelot	Fermentation of cane sugar and glucose.	N. Rep. Pharm., VII, 187.
1858	do	Conversion of certain constituents of shell-fish into sugar.	C. R., XLVII, 227; Ch. Centr., 1858, 675.
1858	do	Melezitose in manna	C. R., XLVII, 224; J. Pr. Ch., LXXVI, 188; A. c. p. (3), LV, 269.
1858	do	Trehalose-glucose by action of acid on trehalose.	C. R., XLVI, 1276; J. Pr. Ch., LXXIV, 494.

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1858	Fehling	Quantitative estimation of sugar	A. C. P., CVI, 75; Ch. Centr., 1858, 527; Dingl. J., CXLVIII, 454; Pol. Centr., 1858, 1014; J. Pr. Ch., LXXIV, 371; Ch. Gaz., 1858, 297; J. B., 1858, 634.
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1858	Marx	Percentage of sugar in grape and fruit juices in 1857.	Wärt. Land & Forst Wirth. Dingl. J., CL, 143; Ch. Centr., 1858, 918; J. B., 1858, 658; Wag., 1858, 330.
1858	Poisseuille and Lefort	Glucose in animal organs	C. R., XLVI, 565, 677; J. Pr. Ch., LXXIII, 467
1858	Werther	Quantitative examination of sugar	J. Pr. Ch., LXXIV, 371; J. B., 1858, 635.
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1859	Pary	On the power which the liver has of producing sugar.	J. Pr. Ch., LXXVII, 354; Phil. Mag. (4), XVII, 142.
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1859	Stepf	Sugar in maize is dextrorotatory and reduces Fehling's solution.	J. Pr. Ch., LXXVI, 92.
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1860	Schiff	Action of grape sugar on alkaline tartrate of copper.	J. B., 1859, 697.
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1868	Boettger.....	Starch sugar for gilding on glass..	Pol. Notizbl., 1868, 129; J. pr. Ch., CIII, 414; Dingl. J., CLXXXVIII, 288; Pol. Centr., 1868, 984; C. C., 1868, 1053; Bull. Soc. Chim. (2), X, 164; Schweiz pol. Zeit., 1868, 114; Fürther Gewerb, 1868, 64; Hess. Gewerb., 1868, 223; Dent. Ind. Zeit., 1868, 194; J. B., 1868, 944; Wag. J. B., 1868, 194.
1868	Classen.....	Cane sugar inverted by water and neutral solutions of salts.	J. pr. Ch., CIII, 449; J. B., 1868, 758; A. C. P., CXLVII, 114.
1868	Claus	Conversion of grape sugar into tartronic acid by cupric oxide.	A. c. p. (4), XVI, 466; J. pr. Ch., CVI, 125; CXII, 63; J. Pharm. (4), X, 234; Z. C., 1869, 152; C. C., 1868, 556; Ch. News, XIX, 250; Bull. Soc. Chim. (2), XI, 157; J. B., 1868, 759.
1868	Commaille.....	Reduction of copper oxide to metal by invert sugar.	J. Pharm. (4), VIII, 18; Chem. News, XVIII, 181; Z. C., 1868, 719; J. B., 1868, 269.
1868	Dobell.....	Action of pancreas on fats and starch.	Proc. Roy. Soc., XVI, 209; J. pr. Ch., CIV, 443; J. B., 1868, 830.
1868	Dubrunfaut	Conversion of starch into sugar by malt, and on the preparation of a nitrogenous substance from malt, more active than diastase. Maltine.	C. R., LXVI, 274; Les Mondes, XVI, 317; C. C., 1868, 1002; Dingl. J., CLXXXVII, 491; Pol. centr., 1868, 759; Z. C., 1868, 351; Bull. Soc. Chim. (2), X, 54; J. B., 1868, 799.
1868	Grüger	Conversion of cane into grape sugar by parasites of vine.	N. Jahrb. Pharm., XXIX, 294; Pol. centr., 1869; J. B. 1868, 759.
1868	.....do	A. Fehling's solution that will keep well.	N. Jahrb. Pharm., XXIX, 193; Z. anal. C., VII, 490; J. B., 1868, 894.
1868	Lea.....	Nitro-glucose	Am. J. Sci. (2), XLV, 381; J. Pr. Ch., CV, 191; J. Pharm. (4), VIII, 461.
1868	Martin	Silvering glass with inverted sugar.	A. c. p. (4), XV, 94; Dingl. J., CXCI, 43; J. B., 1868, 943.
1868	Payen, Dubrunfaut, and others.	Investigation of beer brewing and alcohol manufacture.	Pharm. Centr., 1868, 1025.
1868	Rochleder	Constitution of glucose as a derivative of benzol.	Wien. Akad. Ber., LVIII, 2te Ab., 1060; C. C., 1869, 265; J. Pr. Ch., CVI, 305.
1868	Scheibler.....	Effects of the glass cover in the optical estimation of sugar.	Berl. Ber, I, 268; Z. Anal. C., VIII, 211; N. Jahrb. Pharm., XXIX, 270; Z. Anal. C., VII, 491.
1868	Stahlschmidt	Ferrocyanides for estimating sugar in wine.	Berl. Ber., I, 141; Dingl. J., CLXXXIX, 330; Z. Anal. C, VII, 493; Z. C., 1868, 720; J. B., 1868, 895.
1868	Stenberg	Lichens for making grape sugar and alcohol.	Oefvers of Akad. Forh., 1868, 17; J. Pr. Ch., CIV, 441; CVI, 416.
1869	Baeyer	Action of phosphorus pentachloride on glucose.	Berl. Ber., II, 54; Z. C., 1869, 345; Bull. Soc. Chim. (2), XII, 292; J. B., 1869, 742.
1869	Classen.....	Analysis of grapes.....	J. Pr. Ch., CVI, 9; Ch. News, XIX, 204.
1869	Dubrunfaut	Inversion of cane sugar is attended with contraction.	C. R., LXIX, 1199.
1869	.....do	Separating glucose and levulose by means of lime.	C. R., LXIX, 1366, 1151; Berl. Ber., III, 36; Cane Sugar, II, 131; J. B., 1869, 743.

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1869	.....do	Sugar, glucose, and saccharimetry.	C. R., LXVIII, 815; Sugar Cane, I, 305; Sugar Cane, II, 31.
1869	.....do	Constitution of invert sugar; reply to Maumené.	C. R., LIX, 1151; Pol. Centr., 1870, 575.
1869	Maubré	Manufacture of starch under sugar pressure.	N. Rep. Pharm., XVII, 558; Monit. Scientif., XI, 605; Dingl. J., CXCI, 393; Ch. News, XX, 34; J. Pharm. (4), X, 435.
1869	Maumené	Proportion of levulose in invert sugar.	C. R., LXIX, 1008, 1154, 1242, 1306; Bull. Soc. Chim. (2), XIII, 349; J. Pr. Ch., CVIII, 315; Z. C., 1870. 149; Ch. News., XX, 262; Sugar Cane, I, 304; Pol. Centr., 1870, 343; Berl. Ber., II, 744; J. B., 1869, 743.
1869	Musculus	Starch splits into 1 part grape sugar and 2 of dextrine under the action of diastase.	C. R., LXVIII, 1267; J. Pharm. (4), X, 11; Z. C., 1869, 446; J. B., 1869, 745.
1869	Petit	Probable transformation of the acid of grapes into sugar.	C. R., LXIX, 700; J. B., 1869, 799.
1869	Pierre and Puchot	Products of fermentation of sugar-beet juice.	C. R., LXIX, 95.
1869	Schützenberger	Action of anhydrous acetic acid upon glucose.	C. R, LXVIII, 814; A. C. P., CLX, 86; Berl. Ber., II, 163, 556; Z. C, 1869, 264; C. C., 1869, 681; Bull. Soc. Chim. (2), XII, 107, 204; J. B., 1869, 750.
1869	Vogel, A	Testing glycerine for sugar by molybdates.	N. Rep. Pharm., XVIII, 24; Ch. News, XIX, 167; Ind. Zeit.; Z. Anal. C. VIII, 209; J. R., 1869, 949.
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1870	Colly	Action of acetyl chloride and other haloids on glucose.	C. R., LXX, 401; J. Pharm. (4), XII, 31; Berl. Ber., III, 212, IV, 933, VI, 197; A. c. p., (4), XXI, 363; Z. C., 1870, 250; Ch. News, XXIV, 35; Ch. C., 1870, 178; Bull. Soc. Chim. (2), XIV, 58; J. B., 1870, 841.
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1870	Knapp	Estimating grape sugar with cyanide of mercury.	A. C. P., CLIV, 452; C. C., 1870, 451; Ch. News, XXII, 36; Dingl. J., CXCVI, 538; Sugar Cane, II, 468; IV, 615; J. des Fab. Sucre. Z. Anal. C., IX, 395; N. Rep. Pharm., XIX, 487; Bull. Soc. Chim. (2), XIV, 215; Z. C., 1870, 395, 682; Sc. Amer., XXIII, 121; Buchner's Rep., XIX, 487; J. Pharm. (4), XII, 378; Bayer, Ind & Gewerb., 1870, 241; Pol. Centr., 1871, 270; J. B., 1870; Wag. J. B., 1870, 410.
1870	Krötke	Manufacture of starch sugar and sirup fully described.	Kurhess Gewerbe., 1871, 80; Vierteljahres, Tech. Ch. 1870, 449; Dingl. J. CC, 139; Pol. Centr., 1870, 1689; Pol. Notizbl., 1871, 81; C. C., 1871, 183; Jahrb. Pharm., 1871, 239; Wag. J. B., 1871, 599.

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1870	Lenssen	Fehling's, Knapp's, and Gentele's estimation of sugar.	Z. Anal., C. IX, 453; J. B., 1870, 1034.
1870	Löwe	Glycerine copper solution for estimating sugar.	Z. Anal. C., IX, 20, 224; J. Pharm. (4), XII, 442; Sc. Amer., XXV, 40; Pol. Notizbl., 1870, 124; Z. C., 1870, 509.
1870	Ludwig	Crystals of grape sugar on dried prunes and in preserved prunes.	Bull. Soc. Chim. (2), XIV, 49; N. Rep. Pharm., XIX, 761; J. B., 1870, 1036; Wag. J. B., 1870, 407; C. C., 1870, 532.
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1870	.....do	On the nature of invert sugar.....	C. R., LXX, 53; J. Pharm. (4), XII, 227.
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1871	Claus	Decomposition of grape sugar by copper oxide.	J. Pr. Ch., CXII, 63; J. B., 1871, 795.
1871	Gill	Effect of acetate of lead on rotatory power of glucose solutions.	Ch. News, XXIII, 139; Berl. Ber., IV, 283; J. Ch. Soc. (3), IX, 85, 91; Z. Anal., C. X, 490; C. C., 1871, 237; Sugar Cane, III, 303; Les Mondes, XXXIII, 778; J. B., 1871, 965; Wag. J. B., 1871, 599.
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1871	Maly	Trommer's test in urine	Wien. Akad. Ber., LXIII, 2te Ab., 477; Z. anal. C. X, 382; J. Pharm. (4), XVI, 147; C. C. 1871, 601; B., 1871, 968.
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1871	Pillits	Estimation of sugar	Z. anal. C. X, 456.
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1871	Sachsse	Action of glucose on aniline	Berl. Ber., IV, 836; J. B., 1871, 797.
1871	Schiff	Action of glucose on aniline	Berl. Ber., IV, 908; A. C. P., CXL, 123; CLIV, 30; J. B., 1871, 798.
1871	Seegen	No reliable test for traces of sugar in urine.	Wien. Akad. Ber., LXIV, 2te Ab. 6; Z. Anal. C. X. 501; J. Pharm. (4), XVI, 384; Pharm. J., & Trans. (3), II, 202; J. B., 1871, 968.
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1881..	Wiley	Glucose and amylose	J. Am. Ch. Soc., II, 397; Sugar cane, XIII, 533, 585; Arch. Pharm. (3), XIX, 391; Pharm. J., & Trans. (3), XII, 140; Ch. Zeit., 1881, 856; J. R. Ch., IX, 452; J. B., 1881, 982.
1881	Wiley	Glucose and grape sugar.....	Pop. Sci. Mo., XIX, 251.
1881	Von Wagner-Frankel.	A practical treatise on the manufacture of starch, starch sugar, and dextrine.	Philadelphia, 1881.
1881..	Yoshida	Maltose, from Japanese Amé.....	Ch. News, XLIII, 29, 54; J. B., 1881, 984.
1881..	.....	Cassava, a new source of glucose..	Sc. Amer., XLV, 415; XLVI, 121; Confectioner's Journal.
1881..	.....	Glucose sirup, a deadly poison	Sugar cane, XIII, 367.
1881..	.....	Is glucose wholesome?.....	Sc. Amer., XLIV, 128.
1882..	Allihn	Reducing power of grape sugar for copper is not constant.	N. Zeit., Rübenz, IX, 317; Zeit. Ver. Rübenz, 1882, 608, 865; Ch. Zeit., VI, 995; Wag., J. B., 1882, 691.
1882..	Bauer.....	Influence of invertine on fermentation of cane sugar.	Org. Oestr. Ver. Rübenz. Dingl., J., CCXLV, 47.
1882..	Behr.....	Cryst. anhydrous grape sugar	Berl. Ber., XV, 1104; Ch. News, XLV, 179; Sc. Amer. sup., XIII, 5378; Am. J. Pharm., 1882; J. Pharm. (5), VI, 514; VII, 45; Dingl., J. CCLV, 121; Wag., J. B., 1882, 689.
1882..	Binz.....	Injurious effects of potato brandy.	Centr. Allgem. Gesund, 1882, 131.
1882..	Bielle.....	Conversion of cane sugar by hydrochloric acid and by the gastric juice.	Med. News., XLI, 650.
1882	Boiret	Fehling's solution	L'Union Pharm.; J. Pharm. (5), V, 427.
1882	Casamajor	Detecting starch sugar in molasses.	J. Am. Ch. Soc., III, 87; Berl. Ber., XV, 1775; Sc. Amer. Sup., XIII, 5026.
1882	Chandler & Ricketts..	Determination of artificial grape or starch sugar in cane sugar.	2d Ann. Report, State Board of Health, N. Y., 1882.
1882	Cuisinier	Compound of maltose with lime...	La Sucrerie ind., XIX, 244, 278; Wag., J. B., 1882, 696.
1882	.....do	Newly observed property of glucose; its reducing power.	Sc. Amer., XLVII, 23; Monit. Scient., 1882, 150; Ch. Zeit., VI, 474.
1882	Degener	Fluctuations in reducing power of sugars.	Zeit. Ver. Rübenz., XVIII, 349; Z. Anal. C., XXII, 444.
1882	.....do	Personal error in polarizing	Ver. Rübenz., Ind., 1882, 642; Dingl., J., CCXLVII, 165.
1882	Detmer	Use of citric acid when converting starch with diastase.	Zeit. Phys. Ch., VII, 1; Wag, J. B., 1882, 686.
1882	Dubrunfaut	Starch sugar.....	Ch. Zeit., VI., 326; Sc. Amer., XLVI, 313.
1882	Gall	Rotatory power of glucose	Monit. Scientif., Dec., 1882; Ch. News, XLVI, 292.
1882	Hehner	On Pavy's copper solution	Analyst., VI, 218; Z. Anal. C., XXII, 447.
1882	Habermann and Hönig	Action of cupric hydrate upon sugars.	Wien. Akad. Ber., 1882, 657; Ch. Zeit., VI, 1050.
1882	Hesse	Anhydrous grape sugar	Berl. Ber., XV, 2349; Ch. Zeit., VI, 1252.
1882	Hölzer.....	Sources of error in polarizing.....	Berl. Ber., XV, 1932; Dingl., J., CCXLVI, 345; Z. Anal. C., XXII, 237.
1882	Kiliani	Lactic acid from dextrose	Berl. Ber., XV, 136.
1882	.....do	Saccharone and saccharine	A. C. P., CCXVIII, 361; Berl. Ber., XV, 701, 2953; Berl. Ber., XVI, 2294; Dingl., J., CCXLV, 191; CCXLVII, 435; Zeit. Anal. Ch., XXII, 267.
1882	Lebaigne	Optical estimation of glucose.....	Rep. Pharm., XXXVIII, 391; Ch. Zeit., VI, 1205; Wag. J. B., 1882, 692.
1882	Leplay and Cuisinier..	Preparation of maltose	Dingl., J., CCXLVII, 267.
1882	Lowitz	Discovery of grape sugar.....	Sc. Amer., XLVII, 409; (Crell.)
1882	Marcano.....	Direct fermentation of starch.....	C. R., XCV, 856; J. Pharm. (5), VII, 168; Ch. Zeit., VI, 1285.
1882	Moritz.....	End of Fehling's reaction in very dilute solutions.	Z. Anal. C., XXII, 43; Berl. Ber., XVI, 487.
1882	Müller, W	Preparation of grape sugar by Neubauer's method.	J. pr. Ch. (2), XXVI, 78; Amer. Ch. J., IV, 296; Wag. J. B., 1882, 690

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Date.	Author.	Subject.	References.
1882	Müller, W	Testing for sugar in urine	Pflüg. Arch., XXVII, 107, 86; Z. Anal. C., XXI, 608; Ch. News, XLII, 119.
1882	Nessler and Barth	Testing for potato sugar in urine.	Z. Anal. C., XXI, 53.
1882	Otto	Preparation of grape sugar and titrating with Knapp's test.	J. pr. Ch., (2), XXVI, 87; Ch. News, XLVI, 208.
1882	Perrey	Origin of saccharine matter in plants.	C. R., XCIV, 1124.
1882	Robin	Sugar in urine	Monit. Scientif., July, 1882; Ch. News, XLVI, 78.
1882	Soxhlet	Saccharification of starch	Sc. Am. Sup., XIII, 5378.
1882	Sidersky	Estimating invert sugar	Z. Ver. Rübenz., 1882, 779; Ch. Zeit., VI, 1253.
1882	Wiley	Investigations on starch sugar	Ch. News, XLVI, 175; Dingl. J., CCXLVII, 378; Ch. Zeit., VI, 1206; Wag., J. B., 1882, 692.
1882	Wolff	Testing for starch sugar in sirups	Pharm. Centrlb., XXIII, 491; Dingl., J., CCXLVII, 228; Z. Anal. C., XXII, 280.
1882	Zincke	Constitution of glucose and fruit sugar.	A. C. P., CCXVI, 318.
1883	Antweiler and Breidenbend.	Estimation of diabetic sugar by fermentation.	Pflüg. Arch., XXVIII, 179; Z. Anal. C., XXII, 143; Ch. N., XLVII, 179.
1883	Bourquelot	Researches on physiological properties of maltose.	C. R.; Le Genie Civil, IV, 82.
1883	Carles	Cane sugar better than glucose for making wine.	J. Pharm. (5), VII, 14; Ch. News, XLVII, 35.
1883	Casamajor	Simple test for glucose in sugar.	Sc. Amer., XLVIII, 217.
1883	Chittenden and Ely	Alkalinity and diastatic action of human saliva.	Am. Chem. J., IV, 329; Berl. Ber., XVI, 974.
1883	Eitner	No grape sugar in leather	Gerbers, 1883, 31; Dingl., J. CCXLVIII, 218.
1883	Faulenbach	Estimation of grape sugar and starch in food with Fehling's solution.	Z. physiol. C., VII, 510; Berl. Ber., XVI, 2322.
1883	Flechsig	Cellulose sugar	Z. physiol. C., VII, 523; Berl. Ber., XVI, 2506.
1883	Gladstone and Tribe	Action of light and heat on cane and invert sugars.	J. Ch. Soc., 1883, 341; Berl. Ber., XVI, 2309.
1883	Haas	Comparison of Fehling's, Sachsse's and optical methods.	Z. Anal. C., XXII, 215; Berl. Ber., XVI, 1112; Ch. News, XLVII, 247.
1883	Herzfeld	Maltose	A. C. P., CCXX, 206.
1883	Johnson, G. S	Ammonio-cupric method	Ch. News, XLVII, 57.
1883	Keating	Salivary digestion of starch by infants.	Med. News; Drug. Circ., 1883, p. 172.
1883	Lagrange	Glucose and invert sugar precipitated by lead salts.	C. R., XCVII, 857; Berl. Ber., XVI, 2775; Ch. Zeit., 1883.
1883	Von Mering	Is glucose wholesome?	Sc. Amer., XLVIII, 161; Vierteljahr Gesundheitspflege, 1883.
1883	Müller Thurgau	Transformation of starch into sugar at low temperature in plants.	Ann. agronom; J. Pharm. (5), VII, 508.
1883	Otto Lorenz	Manufacture of potato starch	Pract. Mach. Constr., 1883.
1883	Petsholdt	Diazo-benzol-sulpho-acid test for grape sugar.	Berl. Klin Wochensch, 1883, No. 14; Z. Anal. C., XXII, 466.
1883	Salomon	Starch and its changes under the influence of organic and inorganic acids.	J. Pr. Ch., XXVIII, 82; Berl. Ber. XVI, 2509; Ch. Zeit., VII, 1193.
1883	Scheibler	Saccharine	Berl. Ber., XIII, 2212.
1883	Sounerat	Cupric solutions for estimating glucoses.	J. Pharm. (5), VIII, 28.
1883	Soxhlet	Refining and crystallizing starch sugar.	Sc. Amer. Sup., XV, 5985.
1883	Tollens	Action of dextrose towards ammonio-silver solutions.	Berl. Ber., XVI, 921.
1883	Scheibler	Formation of saccharine from glucoses.	Berl. Ber., XVI, 2434.
1883	Urech	Inversion of saccharose	Berl. Ber., XVI, 762.
1883	Vivien	Estimation of glucose	Dingl., J., CCL. 133; Sucrerie Ind., XXI, 3; Berl. Ber., XVI, 2775; Sc. Amer., XLVIII, 217.
1883	Zulkowsky	Estimating sugar	Ber. Oestr. Ch. Ges., 1883, 39; Dingl., J., CCL. 133; Berl. Ber., XVI, 2775.
1883		Manufacture of glucose in America.	Ch. Zeit, VII, 1212.

APPENDIX 6.

REPORT ON GLUCOSE—Continued.

PATENTS RELATING TO THE MANUFACTURE OF STARCH AND STARCH SUGAR.

No.	Date.	Patentee.	Title.	Method.
12846	May 8, 1855	H. V. Duryea	Starch rake	Specifications not printed.
22789	Feb. 1, 1859	W. Duryea	Making starch	Do.
28278	May 15, 1860	C. S. Irwin	Cleansing starch	Do.
40693	Nov. 24, 1863	T. Kingsford	Starch machine	Do.
42358	Apr. 19, 1864	W. Duryea	Removing starch	Do.
42727	May 10, 1864	F. W. Gossling	Improved manufacture of sugar	Soak the corn a week, crush it and soak again, wash with alkali, convert with sulphuric acid, heat with worm of lead pipe.
42728	May 10, 1864	F. W. Gossling	Making sugar	Specifications not printed.
43047	June 7, 1864	M. Thompson	Treating grain for distillation	Do.
49012	July 25, 1865	H. A. Tilden	Improvement in manufacture of sirup from corn	Treats the entire grain with sulphuric acid at 220° Fahr.
55629	June 19, 1866	H. I. Diessner	Improvement in making sirup from corn	Adds barley-malt, sugar, and wheat-flour.
56356	July 17, 1866	John Briggs	Improved apparatus for preparing starch and size.	
58824	Oct. 16, 1866	A. H. Hirsh	Improvement in manufacture of sugar from corn	Softens the corn with dilute acid at 170° F. to remove gluten, then crush, sieve, wash with dil. ammonia, convert with sulphuric acid, neutralise with sulphate of alumina.
60370	Dec. 11, 1866	T. Hawkes	Condensed extract of malt	Evaporated in vacuo.
60630	Dec. 18, 1866	Leopold Hoff	Improved malt extract	Uses decoction of fennel.
64139	Apr. 23, 1867	Narcisse Pigeon	Improvement in manufacture of starch sugar	Converts with 1 per cent. sulphuric acid at 300° Fahr.
65664	June 11, 1867	J. J. Gilbert	Improvement in manufacture of starch	
66121	June 25, 1867	C. H. Blanchard	Improved machine for making starch paste, size, &c.	
67514	Aug. 6, 1867	A. Erkenbrecher	Improved starch elevator	
67515	Aug. 6, 1867	do	Improved starch-making apparatus	
67516	Aug. 6, 1867	do	Improved starch agitator	
68294	Aug. 27, 1867	do	Improved apparatus for drying starch	
68374	Sept. 3, 1867	Mason & Brant	Improved machine for stirring starch	
73259	Jan. 14, 1868	J. A. Owens	Improved starch-making apparatus	
78320	May 26, 1868	J. A. Owens	Improved starch trays	
81880	Sept. 8, 1868	C. Gilbert	Improved starch separator	
87758	Mar. 16, 1869	William Clough	Improvement in defecating saccharine fluids	Uses ground sulphate of baryta and coagulates by heat.
87759	Mar. 16, 1869	do	Improvement in refining and decolorizing saccharine liquids.	Hydrate of alumina and waterglass employed.
87980	Mar. 16, 1869	Sims & Hutchinson	Improved mode of preparing grain for distillation	Removes oils by carbon di-sulphide.
94341	Aug. 31, 1869	J. J. Ridge	Improved process and apparatus for treating flour and meal.	Farinaceous substances are roasted at 212° F. for six hours and mixed with an alkaline or saccharine substance.
101783	Apr. 12, 1870	S. Stenberg	Manufacture of sugar and alcohol from lichens	Boiling with dilute acids.
109991	Dec. 6, 1870	C. Delamarre	Sugar from sweet potatoes	Malted barley added to the paste heated to 180° F., then to 220°, and cold water added.
113997	Apr. 25, 1871	C. H. Fringes	Improvement in preparing and mashing grain	Treated with dilute alkali which is neutralized with H Cl.
115051	May 23, 1871	J. J. Grosheinz	Improvement in manufacture of glucose sirups and sugars.	Uses dilute hydrochloric or sulphuric acid, and neutralizes with soda, potash, magnesia, &c.

118523	Aug. 29, 1871	W. Garton	*Preparation of fermentable saccharine matters*	Neutralizes with finely-ground animal charcoal or phosphate of lime.
118524	Aug. 29, 1871	do	Manufacture of invert sugar for brewing, &c	Adds dilute sulphuric acid to saccharine juices and heats to 160° or 212° F., then adds animal charcoal.
127418	June 4, 1872	W. H. Keyt	Improvement in manufacture of glucose	Converts starch at low temperature (220° F.) and neutralizes with lime.
135904	Feb. 18, 1873	C. Gilbert	Improvement in manufacture of starch	
137911	Apr. 15, 1873	do	Improvement in starch apparatus	
137911	Apr. 15, 1873	do	Improvement in starch mills	
140141	June 24, 1873	T. Kingsford	Improvement in starch apparatus	
140141	Aug. 5, 1873	do	do	
145213	Dec. 2, 1873	do	do	
145846	Dec. 23, 1873	O. F. Cook	Improvement in processes of preparing grain for flour	
156802	Nov. 10, 1874	W. A. Lawrence	Improvement in composition of hop extract for flavoring beer.	Mix hop extract glycerine, grape sugar and cane sugar.
159837	Feb. 16, 1875	E. E. Pearse	Improvement in manufacture of grape sugar	Converting rice and other grain into glucose or grape sugar by one operation in a vessel containing dilute sulphuric acid.
166090	July 27, 1875	W. Garton	Improvement in manufacture of glucose	Rice, &c., is converted by acid and heat, and instead of neutralizing the excess of acid is used to invert cane sugar.
167224	Aug. 31, 1875	L. Chiozza	Improvement in treating maize	Immerses the grain in sulphurous acid before crushing and screening.
172099	Jan. 11, 1876	E. E. Duryea	Improvement in drying starch	
186935	Feb. 6, 1877	S. H. Johnson	Improvement in manufacture of glucose	"Permeable" grain made by treating with dilute hydrochloric acid, wash, drain, macerate with acid again, then submitted to the direct action of steam under pressure.
187250	Feb. 13, 1877	Boomer & Randall	Improvement in manufacture of malt sirups or extracts	Fatty acids removed by alkali.
187313	Feb. 13, 1877	H. R. Randall	do	Washing ground grain at 180° F., then mixing it with malt at 158° to 160°.
187747	Feb. 27, 1877	do	Improvement in saccharine composition sirup	A mixture of uncrystallizable glucose with sucrose.
187881	Feb. 27, 1877	A. Manbre	Improvement in apparatus and processes for manufacturing purified saccharine solutions.	Removes fatty matter by distilling it off after mixing with dilute acid.
191942	June 12, 1877	R. d'Heureuse	Preparing mash	Uses a high pressure, without raising the temperature, so as to injure the diastase, say 140° to 175° F.
195718	Oct. 2, 1877	F. Melkersman	Improvement in drying and purifying starch by centrifugal action.	
198192	Dec. 18, 1877	R. d'Heureuse	Process and apparatus for disintegrating cereals	
198474	Dec. 25, 1877	R. S. Toothill	Process for manufacture of sirups	Mashing ground corn or other cereal with barley malt.
202832	Apr. 23, 1878	T. Kingsford	Process and apparatus for drying starch	
203935	May 21, 1878	Narcisse Pigeon	Improvement in process for manufacturing glucose	Adds diastase to the corn mash at 125° F., then heats to 185° F., then cool to 152°, and adds more diastase.
210496	Dec. 3, 1878	J. Carnick	Improvement in malt extracts	Malt barley, wheat, and oats separately; mix; evaporate in vacuo at 120° F.
213320	Mar. 18, 1879	G. Burkhardt	Processes for manufacturing starch	
214910	Apr. 29, 1879	L. G. Hegi	Improvement in starch compounds	Adds sulphate of ammonia, sugar, and acetic acid.
218020	July 29, 1879	H. M. Hartshorn	Improvement in processes for manufacturing glucose	Corn is granulated dry, sifted, ground to meal, and converted by diastase or acid.
220116	Sept. 30, 1879	Behr and Humphrey	Extracting oil from the residuum of glucose	The starch first removed leaves the fat in the residuum, which is extracted with bisulphide of carbon.
220150	Sept. 30, 1879	H. C. Humphrey	Improvement in manufacture of glucose	Direct treatment of the corn with an organic acid.
220625	Oct. 21, 1879	G. A. Gessner	Producing malt extract	A heated, extractive liquid percolates through the hot grain.
223847	Jan. 27, 1880	J. F. Gent	Prepared cereal	

APPENDIX 6.—*Patents relating to the manufacture of starch and starch sugar*—Continued.

No.	Date.	Patentee.	Title.]	Method.
226398	Apr. 13, 1880	C. Furbish	Process of manufacturing glucose	The corn is cracked and hulled, the hulls and clippings removed, and the hard portion subjected to heat, water, and pressure. It is then converted by diastase or acid under pressure.
226434	Apr. 13, 1880	J. F. Wolff	do	Currents of air or oxygen forced through the mass while mashing, boiling, and neutralizing.
230991	Aug. 10, 1880	L. J. Bennett	Process of obtaining the glutinous and starchy substances from Indian corn.	Beating or whipping off the glutinous portion or hull.
231804	Aug. 31, 1880	H. C. Humphrey	Obtaining starch and glucose from corn	Part of the starch is separated and sold, the remainder converted into glucose.
235053	Nov. 30, 1880	T. Gassaway	Manufacture of starch	
236330	Jan. 4, 1881	R. d'Heureuse	Manufacture of glucose	The corn, freed from hulls and germs, is steeped, and the solution of gluten expelled in centrifugal machine. It is converted with acid, neutralized with lime, then oxalic acid and soda added.
238474	Mar. 1, 1881	C. O'Sullivan	Treatment of starchy substances, and production of a substitute for malt in brewing, and called "dextrine maltose."	Starch treated with sulphuric acid, and the conversion stopped when there is 44% of glucose, as found by Fehling's method.
239171	Mar. 22, 1881	T. A. & W. T. Jebb	Obtaining starch from grain	
240651	Apr. 26, 1881	A. L. Bruce	Treatment of dextrine, maltose, &c., and apparatus	Apparatus for drying the products, so that they can be pulverized when cold.
240652	Apr. 26, 1881	A. L. Bruce	Machinery for treating dextrine, maltose, &c.	
240796	Apr. 26, 1881	H. Williams	Process and apparatus for manufacturing grape sugar (to make it crystallize).	Artificially cools and agitates the sirup after it leaves the vacuum pan, then adds a creamy solution of grape sugar.
240907	May 3, 1881	T. A. & W. T. Jebb	Apparatus for steeping grain	
241202	May 10, 1881	A. G. Fell	Manufacture of glucose	Corn treated with nitro-sulphuric acid at 195° F. to 214° F. It is boiled in vacuum pans, and sulphurous acid gas introduced.
241476	May 17, 1881	F. Camus	Treating cereals to separate oily germs, flour and starch	
241666	May 17, 1881	T. A. & W. T. Jebb	Obtaining starch from Indian corn	
241903	May 24, 1881	Williams & Alberger	Manufacturing crystallizable grape sugar	One per cent. of finely-powdered grape sugar added.
242207	May 31, 1881	Lyon & Taylor	Machine for pulverizing grape sugar	
*9732	May 31, 1881	J. A. Owens	Manufacture of starch	
242439	June 7, 1881	A. P. Dubrunfaut	Saccharification of amylaceous matters by malt	Starch paste treated with an exhausted infusion of malt at 122° F. for 60 or 70 hours. Oxidized malt infusions are more active.
243024	June 14, 1881	E. Wilhelm	Starch separator	
243269	June 21, 1881	T. A. & W. T. Jebb	Starch table	
243270	June 21, 1881	T. A. & W. T. Jebb	Starch apparatus	
243310	June 21, 1881	C. Sheibler	Separating gypsum from solutions of starch sugars	The use of barium oxalate.
243660	June 28, 1881	Williams & Alberger	Process of manufacturing glucose from grain	Cancelled, sec. 246, 262.
244903	July 26, 1881	S. H. Johnson	Production of saccharine substances containing little or no starch.	Dilute hydrochloric acid employed, and steam at a pressure of 60 to 90 lbs., or water at 305° F.
245340	Aug. 9, 1881	A. Behr	Apparatus for manufacturing starch liquor	
246262	Aug. 23, 1881	Williams & Alberger	Glucose from grain	At first only enough acid is used to produce soluble dextrine and coagulate gluten and albumen; filter, then convert with acid. Residue used as cattle food.
*9850	Aug. 23, 1881	do	Process of manufacturing crystallizable grape sugar	The same as 241903 above.

247153	Sept. 20, 1881	.....do	Apparatus for the above	Do.
247288	Sept. 20, 1881	J. L. Alberger	Process of manufacturing sugar from corn	Grain or meal treated with hot water and steam only until the starch is converted into a solution of soluble dextrine, filtering, converting with acid or malt-liquor.
247433	Sept. 20, 1881	W. G. Taylor	Apparatus for siphoning starch liquor	
247455	Sept. 20, 1881	Williams & Alberger	Refining glucose or grape sugar	Its bitter element is eliminated by fermenting it after saccharification.
247957	Oct. 4, 1881	F. Soxhlet	Refining starch sugar	The sirup mixed with ethyl or methyl alcohol and pulverized grape sugar.
247958	Oct. 4, 1881	.....do	Refining and crystallizing starch sugar (anhydrous)	Crystallizes a mixture of starch sugar and wood spirit at 30 to 35° C. (86 to 95° F.)
248313	Oct. 18, 1881	F. Higel	Glucose from the cassava plant	Converts with sulphuric acid, and neutralizes with sea-shells.
248734	Oct. 25, 1881	R. W. Graves	Starch table	
248904	Nov. 1, 1881	Wilson & O'Reilly	Gum substitute	Starch is moistened with hydrochloric acid, dried and heated evenly, or roasted.
248972	Nov. 1, 1881	Williams & Alberger	Manufacturing glucose or grape sugar	It is converted into dextrine and filtered before saccharification.
248973	Nov. 1, 1881	.....do	Apparatus for starch or starch sugar	
249056	Nov. 1, 1881	T. A. Jebb	Starch separator	
250084	Nov. 29, 1881	S. M. Lillie	Process of and apparatus for mixing glucose with cane sugar.	A moist sugar is obtained by spraying a solution of grape sugar on dry cane sugar in the revolving machine, slacking its speed.
250117	Nov. 29, 1881	Weber & Scovell	Manufacture of glucose from seeds of sorghum, imphee, &c.	Uses sulphuric acid in open or closed converters.
*9947	Nov. 29, 1881	L. Chiozza	Process of treating maize	Steeping in sulphurous acid before crushing it.
250143	Nov. 29, 1881	R. W. Graves	Machine for reducing starch	
250333	Dec. 6, 1881	A. Behr	Manufacturing crystallized anhydride of grape sugar from watery solution.	A mass containing about 15 per cent. of water is kept at 100° Fahr. for 12 to 24 hours, then centrifugalled.
250334	Dec. 6, 1881	.....	Refining grape sugar.	See above.
250335	Dec. 6, 1881	Behr & Humphrey	Manufacture of starch and sirup or sugar from corn	The overflow from the starch tables treated with acids to saccharify the starch.
250362	Dec. 6, 1881	H. C. Humphrey	Method of settling starch liquor	
251827	Jan. 3, 1882	G. Burkhardt	Method and apparatus for obtaining starch	
251887	Jan. 3, 1882	H. C. Humphrey	Treating maize in manufacture of beer, glucose, &c	First makes soluble starch with acid, separates germs and hulls, then converts it.
253337	Feb. 7, 1882	A Atkinson	Machine for starch	
253919	Feb. 21, 1882	Giesecke & Hamlin	Process of manufacturing corn sirup	Heats a mixture of cane and grape sugar and agitates it.
253923	Feb. 21, 1882	H. Hamlin	Art of manufacturing starch	
254029	Feb. 21, 1882	C. Lauts	Starch table	
254063	Feb. 21, 1882	M. J. Stark	.....do	
254157	Feb. 28, 1882	E. Roat	Apparatus for washing starch	
254158	Feb. 28, 1882	.....do	Starch machinery	
254159	Feb. 28, 1882	..... do	Apparatus for cooling sirups	
254240	Feb. 28, 1882	Roat & Hamlin	Process and apparatus for treating starch refuse	The wet material is subjected to pressure, disintegration and heat to prepare it for cattle feed.
254329	Feb. 28, 1882	W. T. Jebb	Method and apparatus for manufacturing distilled spirits	Grain mashed with malt and fermented.
254330	Feb. 28, 1882	.....do	Distilled spirits from grain	

247103	Sept. 20, 1881	A. Behr	Process of treating corn in the manufacture of starch, glucose, &c., from it.	It automatically separates the corn and water into three parts germs alone; hulls; mealy part.

*Reissue.

APPENDIX 6.—*Patents relating to the manufacture of starch and starch sugar*—Continued.

No.	Date.	Patentee.	Title.	Method.
254359	Feb. 28, 1882	E. Roat	Apparatus for manufacturing starch	
256221	Apr. 11, 1882	T. A. & W. T. Jebb		
256315	Apr. 11, 1882	Graves & Heede	Starch separator	
256622	Apr. 18, 1882	A. Behr	Crystallized anhydrous grape sugar	A longer time allowed for crystallizing at 90° F.
256623	Apr. 18, 1882	....do	Crushed anhydrous grape sugar	
256630	Apr. 18, 1882	W. T. Booth	Starch separator	
256809	Apr. 18, 1882	E. Roat	Crystallizing apparatus for grape sugar	
256835	Apr. 25, 1882	H. Hamlin	Purifying glucose	Two concentrations with intervening filtration.
257930	May 16, 1882	E. Fox	Manufacture of glucose	Filters out gluten before saccharification; agitates with air.
257958	May 16, 1882	F. O. Matthiessen	Washing out starch troughs	
257959	May 16, 1882	Matthiessen & Behr	Apparatus for emptying starch tables	
258070	May 16, 1882	T. A. & W. T. Jebb	Starch apparatus	
258265	May 23, 1882	J. J. Tonkin	Starch settling tanks	
259050	June 6, 1882	Roat, McKee & Hamlin	Converter for starch into glucose	
260380	July 4, 1882	J. & F. Fermenich	Starch washer	
260853	July 11, 1882	J. Duff	Obtaining dextrine and saccharine matter from grains	Grind, mash, regrind, separate hulls, then finish the conversion.
261445	July 18, 1882	P. H. Grimm	Starch separator	
263080	Aug. 22, 1882	W. Duryea	Starch apparatus	Pressed, heated, ground, and then mixed with ground grain for cattle feed.
263525	Aug. 29, 1882	W. T. Jebb	Treating starch refuse	
263958	Sept. 5, 1882	E. S. Renwick	Manufacture of starch	
264037	Sept. 5, 1882	T. A. Jebb	Manufacture of dry grape sugar	Agitate and cool the liquid, and expose to air currents.
264222	Sept. 12, 1882	H. W. Bartol	Manufacture of glucose	Removes oils and gluten by soaking in acid or alkali at 90° to 120° F.
264688	Sept. 19, 1882	P. H. Grimm	Starch separator	
266136	Oct. 17, 1882	....do	....do	
266268	.....	W. B. Brittingham	Glucose from cactus	Uses diastase.
267546	Nov. 14, 1882	G. Lauga	Manufacture of dextrine glucose and grape sugar	Attacks starch with oxygenated glucose liquid and phosphoric acid. Neutralizes with saccharate of magnesia.
268658	Dec. 5, 1882	A. G. Fell	Manufacture of glucose	Treats the grain with acids, neutralizes and then treats with sulphurous acid under pressure.
269717	Dec. 26, 1882	W. Robinson	Method of treating grape sugar	Breaks it up and passes through the fragments a current of vapor capable of taking up the impurities.
269779	Dec. 26, 1882	H. Endemann	Manufacture of glucose and grape sugar	Orthophosphoric acid acts on starch above 212° F.
270042	Jan. 2, 1883	A. G. Fell	Manufacture of glucose	Purifies it by cooling the hot solution to precipitate the gluten, &c.
270699	Jan. 16, 1883	W. Robinson	Method of crystallizing grape sugar	Melts the sugar, but arrests the process before completely dissolved and adds 5 per cent. of water below 212° F., to form an emulsion and lets it stand at low temperature.
276284	Apr. 24, 1883	H. W. Bartol	Manufacture of glucose and grape sugar	It is converted by the dry process without separating the starch from foreign matters, uses sulphurous acid, and filters the [illegible] over charcoal.
277029	May 8, 1883	C. G. Miller	Machine for cutting blocks of grape sugar	
278092	May 29, 1883	J. H. Brookmire	Apparatus for mixing sugars	

[illegible]	[illegible]	Landry & Lauga	Methods and apparatus for converting amylaceous and ligneous substances into grape sugar.	By [illegible]
279354	June 12, 1883	J. W. Decastro	Converting starch into glucose	Uses carbonic acid and steam under pressure.
280045	June 26, 1883	T. P. Kingsford	Manufacture of dextrine, glucose, &c	Soak in lime water, grind, add sulphurous acid, then nitric acid, and finally steam pressure.
285067	Sept. 18, 1883	Polson & Harley	Manufacture of starch	
285654	Sept. 25, 1883	T. Norton	Process for crystallized grape sugar	A concentrated solution is cooled almost to solidification, then melted and permitted to cool and crystallize.
88245	Nov. 15, 1883	H. J. Krebs	Manufacture of glucose	Exposing the grain to acidulated water in movable vessels.

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S. Mis. 85——10

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 86.

LETTER

FROM

THE SECRETARY OF STATE,

RELATIVE

To increasing the clerical force of the Bureau of Statistics of the State Department.

MAY 2, 1884.—Reported from the Committee on Commerce and referred to the Committee on Appropriations and ordered to be printed, to accompany amendment to legislative, executive, and judicial appropriation bill.

DEPARTMENT OF STATE,
Washington, April 4, 1884.

SIR: In addition to the usual official duties which are sufficient to occupy consular officers during business hours, a large amount of work has been thrown upon them by the law and regulations which require reports on manufactures and commerce, especially that phase of commerce which deals with the enlargement of American trade in the several districts.

The interest excited in the question of how best to increase our foreign trade is largely due to the publication of the very valuable reports of these officers, and this interest has flooded the principal consulates with correspondence from American manufacturers, importers, and exporters, requiring all sorts of information, as to the state of the markets, the best means for the introduction of American goods, the standing and character of merchants, &c. This correspondence has at length reached a point which demands immediate relief for the consuls, who are not well paid and are generally without clerical assistance. The accompanying copy of a dispatch from the consul-general at Matamoros, Mexico, is a fair illustration of the condition of affairs which now prevails in the principal consulates.

Consul-General Sutton recommends, as will be seen in his dispatch, as the best manner of relieving the consulates and at the same time affording merchants and manufacturers speedier and surer means of securing the information desired, the establishment in this Department of a bureau of commercial information, to which all such inquiries should be directed in the first place instead of to the consuls. Such inquiries as could not be answered directly by the bureau should be transmitted in regular and official form to the consuls, and the answers when re-

ceived published for general information, which now, as between consul and correspondent, is applied for the advancement of private interests.

The relief sought, and the very important work which could be accomplished by the establishment of a bureau of commercial information, as recommended by Consul-General Sutton, can be as effectively performed by simply increasing the clerical force of the Bureau of Statistics already in existence in the Department.

The present force of this Bureau, viz, a chief of Bureau, one clerk of class 4, and one clerk of class 1, together with three subordinate clerks engaged wholly in copying documents and addressing printed publications, is very inadequate to the work assigned thereto, leaving out of the question that which might be accomplished were the necessary clerical force available. The inadequacy of the force employed in this Bureau has been the subject of correspondence between my immediate predecessors, Mr. Evarts and Mr. Blaine, and Congress. In 1882 I also had the honor of drawing the attention of Congress to this same subject.

The force at present employed in this Bureau is no larger than that which was employed therein when its whole duties consisted simply in the preparation of the consular reports for the annual volume entitled Commercial Relations. At present, in addition to this annual volume and its very full introductory letter, the Bureau has charge of the preparation of matter for the Monthly Consular Reports, the quarterly volume of Declared Exports, and such special publications in answer to circulars, as the State of Labor in Europe; Cotton Goods Trade of the World; Cotton and Woolen Mills of Europe; Ostrich Farming; Cereals in Europe and India; and Petroleum and Kerosene Oil in Foreign Countries.

There are at present in the hands of the consuls, or under way, four circulars, the answers to which will be published specially, viz: The Cattle Breeds of the World; The State of Labor in the several countries; Fruit Culture in the several countries; and Agriculture Machinery and Implements in the several countries. The scope and tenor of these circulars will be seen by the copies herewith attached, and to which your attention is respectfully invited.

The field for securing information concerning commercial and mechanical appliances, trade conditions in the various countries, and the best means to be employed for the enlargement of our trade in the various markets, is almost unlimited, and the information already laid before the country through consular agencies, limited as the means and appliances have been, is enough to show what could be done with a larger force at the command of the Department. I trust, however, I have said enough to impress your honorable committee with the reasonableness of this request for an increase in the clerical force of the Bureau for the purposes set forth.

To enable the Bureau to accomplish the work assigned to it in a proper manner, including the duties for which Consul-General Sutton recommends the establishment of a new Bureau will require an additional force of at least two clerks and one folder and packer. As the duties of these clerks will be generally of a technical character—revising, reading, collecting, and often preparing original matter—I would respectfully recommend that said clerks be of the following grades: one of class 4 and one of class 3.

I need hardly add that the sooner the Department is able to avail of the additional force the better for the initiation of the very important work under consideration.

With such an increase in force, consuls will be relieved of a large correspondence, the information sought will be more satisfactorily obtained, and be received more promptly, as the loss of time necessarily in receiving a reply from a distant post will be obviated.

I have the honor to be, sir, your obedient servant,

FRED'K T. FRELINGHUYSEN.

Hon. S. J. R. McMILLAN,
Chairman of the Committee on Commerce,
United States Senate.

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC No. 87.

IN THE SENATE OF THE UNITED STATES.

MAY 8, 1884.—Submitted, read, and ordered to be printed.

Mr. VAN WYCK submitted the following

RESOLUTION:

Resolved, That the Secretary of the Interior be directed to withhold granting patents to, or recognizing any claim made by the Northern Pacific Railroad adjoining and on account of what is known as the Puyallup Branch, built many years ago, until this Congress shall take action on the question of the forfeiture of lands granted to said road.

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 88.

IN THE SENATE OF THE UNITED STATES.

MAY 15, 1884.—Ordered to be printed.

Mr. MORGAN submitted the following

RESOLUTION:

Resolved, That the Committee on Finance be directed to examine into the causes of the failure of such of the national banks in the city of New York as have suspended business in the month of May, 1884, and report whether said failures have to any, and what, extent resulted from any violation of the laws regulating their conduct, or from giving certificates upon drafts, or by their acceptances of drafts or other commercial paper drawn upon them, directly or indirectly in evasion of or in violation of the laws, and whether any other national banks in New York City have been engaged since July 12, 1882, in the violation or evasion of the laws regulating their conduct. And that said committee have leave to sit during the sessions of the Senate, and to visit the city of New York, and to send for persons and papers, and to examine witnesses on oath.

That the expenses incurred by said committee in the execution of this order shall be paid out of the contingent fund of the Senate, to be audited and approved by the Committee to Audit and Control the Contingent Expenses of the Senate.

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 89.

IN THE SENATE OF THE UNITED STATES.

MAY 15, 1884.—Ordered to be printed.

Mr. LOGAN, from the Committee on Appropriations, reported the following, which was ordered to be printed for the use of the Senate:

REPORT OF THE COMMISSIONER OF PENSIONS ON HOUSE BILL 6094, REDUCING THE NUMBER OF PENSION AGENCIES AND THE COMPENSATION OF AGENTS.

[Addressed to the Hon. William B. Allison, chairman of the Committee on Appropriations, United States Senate, May 9, 1884.]

DEPARTMENT OF THE INTERIOR, PENSION OFFICE,
Washington, D. C., May 9, 1884.

SIR: I have the honor to acknowledge the receipt of your letter of the 5th instant, inclosing House bill 6094, making appropriations for pensions for the fiscal year of 1885, wherein my views are requested upon the proposed legislation in the bill, and particularly as to the proposed reduction in the number of pension agents; what saving, if any, will be effected, and what delay, if any, in the payment of pensions will be occasioned, &c.

In answer to your inquiries I submit herewith for your consideration the following report:

The bill in question, which passed the House of Representatives April 22, 1884, provides for the following changes in existing laws relating to pension agents and agencies:

First. From and after July 1 next, the agents for paying pensions shall receive $10 for each one hundred vouchers, or at that rate for a fraction of one hundred, prepared and paid by any agent, in excess of four thousand vouchers per annum. This is in lieu of $15 for each one hundred vouchers now allowed by law under the same conditions and limitations.

Second. From and after July 1 next, the number of pension agencies shall be reduced from eighteen to twelve.

The expediency of reducing the number of agencies from the present organization I am not prepared to advocate. Perhaps if two of the present agencies should be consolidated with others there might not be urged any very strong reasons why this branch of the service would not be as efficient as now. But a greater reduction in number is more of a radical measure, making some of the agencies cumbersome to handle, and removing them from large centers of pension population, necessarily making the payments less prompt to those thus affected than they now enjoy. This measure would be experimental, and while results might demonstrate it was no failure, I am not at present sufficiently persuaded of its prospects for success and in the direction of a sound policy to place myself on record in favor of it.

The operations of the present compared with the past system are so

fully set forth in this report that I shall content myself to leave this matter for the wise determination of Congress.

The proposed change in the compensation of pension agents I will discuss more in detail, for, if the same should prove to be inadequate, it would not only operate to deprive a class of responsible officers of the Government (by a misapprehension of facts) of the net compensation which Congress inteided they should be entitled to, but, besides, it would operate to cripple the action of the agents, compel them to secure cheaper labor, which would involve greater risks; prevent them from augmenting their permanent clerical force by the employment of temporary clerks, whereby they are now enabled to make expeditious payments; and also, cause delay, compared with present methods in paying pensions.

So much has been said in the debates and discussions upon this bill which showed a misapprehension of the duties required and the labor performed at a pension agency that I deem it pertinent to give, as briefly as practicable, some of the regular and routine duties of an agency.

The quarterly pensions are due on the fourth day of March, June, September, and December of each year. The vouchers upon which the pension is paid cannot be legally executed before the day on which such quarterly pensions become due.

These vouchers are known as printed blanks; such matter as would relate to any pensioner being printed therein, and that which otherwise relates to each individual case being written by the pension agent. These vouchers, properly prepared at the agency, are sent by mail to the several pensioners. The jurat of the magistrate before whom the pensioner executes his voucher, is filled by the former except where the pensioner appears at the agency in person to receive his pension, when the jurat is filled thereat. The number of pensioners paid in person at the several agencies is estimated at 50,000.

The ordinary invalid voucher requires to have written therein in each case the full name of the pensioner; the number of his pension certificate and date of issue by the Department; the rate of pension per month; the day, month, and year to which he was last paid. Where a payment is made to a pensioner in person, additional to the above, there is written the post-office address by town, county, and State, and, if a city, the street and number; and in the jurat the name of the State and county, the day, month, and year of execution, the full name of pensioner, and the number of his certificate. In all cases there are attached to the voucher two receipts, an original and duplicate, in each of which there has to be written the amount paid, in figures; the date of payment, again the amount paid, written out; the number of the check, the day, month, and year of its issue; the depository upon which drawn; the period covered by the payment; the number of the pension certificate; the day, month, and year *from* which, and the day, month, and year *to* which the payment is made.

On the outside face fold of the voucher is recorded its voucher number, the full name of the pensioner, the month and year in which the payment is made, and the amount of the payment.

In a "widow's, &c.," voucher, additional to that required in an invalid, there is written the name of the soldier, his rank, company, and regiment; and if there are any minor children, the names of each are written.

The agents have complete and well-prepared rolls of all the pensioners paid by them, with the essential data upon which to prepare their vouchers. This roll each keeps corrected by inscribing the names of all new pensioners assigned to his agency, and noting the fact of termination

of pensions, changes in rate, &c., &c. This, in itself, is no inconsiderable item, as during the past year 90,508 cases came within this description, making an average of 5,028 names to each of the eighteen agencies, involving a change on the agency roll.

A well conducted agency with 30,000 pensioners would receive from 20,000 to 23,000 vouchers, and pay them all inside of ten days after the quarterly payment becomes due. It is during this period that the "rush" in payments continues. To accomplish this would require the services of 35 clerks; from 20 to 25 of whom would be temporary.

This number of vouchers, 20,000 to 23,000, represents so many pieces of mail. They are opened, each one examined as to its proper execution, then compared with the agency roll, and the payment entered thereon, by stating the amount, year, month, and day paid; a check issued as payment, and envelope addressed to the pensioner; then in other hands the check, envelope, and voucher are compared, one with the other, and then the check is mailed.

The temporary force may then, at the end of ten days, be very generally dispensed with. During the balance of the month several thousand vouchers are paid as rapidly as they are received. The hours of labor during the pay month will average from twelve to fifteen to each clerk.

During the second month of the quarter the check-stubs are verified with the amount in each voucher, and an abstract of payments made for the auditing officers of the Treasury. This abstract contains the voucher number, the full name of the pensioner, and the amount paid to each. With twenty-five names on a page, each of which has the amounts footed, it requires upwards of one thousand pages.

In striking a balance, an error or "difference" involves not infrequently a comparison of every check-stub with the abstract, and sometimes with both vouchers and abstract. After this, the preparation of vouchers for subsequent quarterly payments is commenced.

The foregoing represent fairly the routine duties of paying the regular or current pensions.

Other payments are those of new pensioners allowed, also those whose pensions have been increased; the payment of the accounts of examining surgeons four times in each year, involving the payment of 4,960 accounts, for which latter item there is no compensation provided the agent for his services, nor is he reimbursed for his postage thereon.

Taking the allowance of pensions during the past fiscal year, and an average agency of 30,000 pensioners, the following will serve its illustration.

Four thousand new pensions allowed and all the essential data relating to the same is inscribed on the agency roll in each case. The amount of pension is computed, the vouchers prepared, and the payments made.

Two thousand five hundred claims for increase allowed, requiring the changes made by same, to be entered upon the agency roll. One-half of this number will receive an intermediate payment covering the time up to the last date paid.

Two thousand five hundred cases where the names of pensioners have been dropped from the roll, or the rates of pension have been reduced; the changes thus made to be entered on the agency roll, and a report in each case made to the Commissioner of Pensions.

Reports by the agents, showing the date of last payment in several thousand cases called for by the Commissioner of Pensions for use in pending claims for restoration and increase; a large and increasing correspondence with pensioners and attorneys, the accounting officers

of the Treasury, and the Commissioner of Pensions; certified statements from agency rolls for the Surgeon-General, U. S. A., in the settlement of claims for artificial limbs or commutation therefor; these, with other important duties, constitute the general routine at the several agencies, and demand of them judgment, care, and experience.

Each quarterly payment the great bulk of the vouchers are executed by the pensioners on the fourth and fifth of the month they become due. The percentage of the whole roll of pensioners paid the first ten days is fairly stated, as follows:

The first day, 5 per cent. are paid; the second day, 12 per cent. have been paid; the third day, 22 per cent.; the fourth day, 35 per cent.; the fifth day, 45 per cent.; the sixth day, 55 per cent.; the seventh day, 62 per cent.; the eighth day, 68 per cent.; the ninth day, 75 per cent.; and the tenth day, 82 per cent. have been paid.

Some of the agencies, having large geographical districts, fail to receive the great bulk of their mail as promptly as in other districts, so that the rapidity of payments in a majority of cases will exceed the figures given as the average of all the agencies. From the fifth to the eighth day, after the payments become due, the great accumulation of vouchers is paid, and thereafter all vouchers received are paid within twenty-four hours after their receipt.

To accomplish such results requires an intelligent and efficient clerical force as a permanent one, and this is augmented by the employment of temporary clerks for several days during each quarter.

In illustrating the possibilities of an expeditious payment, in a communication addressed by me to a member of the House Committee on Appropriations, I took occasion to refer to the State of Ohio, which comprises one agency district favored by complete mail facilities. For this illustration I selected payments of September last, as no impetus could then be given to the remarkable dispatch of business on account of contemplated changes in the present agency system.

The pension agent at Columbus, Ohio, in September last, received executed vouchers and paid the same as follows:

September 4, received 4,471 vouchers and paid	452
September 5, received 6,490 vouchers and paid	1,913
September 6, received 6,451 vouchers and paid	4,124
September 7, received 2,529 vouchers and paid	7,542
September 8, received 1,399 vouchers and paid	7,309

Twenty-one thousand three hundred and forty vouchers received and paid up to the close of business of the fifth day, a payment of 80 per cent. of his entire roll in five days.

During the remainder of the month he received an average of 263 vouchers daily, and these were paid within twenty-four hours after their receipt. This agent employs twenty-five temporary clerks, additional to his permanent clerical force. It is true that the additional expense thus incurred could be avoided by this and the other agents, but to do so delays in the payment of pensions would ensue, and to limit the fee on vouchers to 10 cents will necessarily produce such a result.

The compensation to pension agents should be sufficient to enable them to avail themselves of all reasonable opportunities to make prompt payments, and the same should not be so curtailed that an agent could not, in justice to himself, pursue this course, and at the same time receive the net compensation contemplated by law.

During the pay month the payments commence soon after daylight, and during the whole month the agent and his clerical force are kept

at work until 9, 10, and 11 o'clock at night. In some instances the time may be less, but in others it is more.

I have obtained from the several agents reports showing their personal expenses as far as they could be given in detail. These reports, in part, are from the six months prior to March 1 last, while others are for a year. Consolidating these, and making a comparative statement for one year, the following is shown:

Fees on vouchers for one year, on the basis of the sum actually paid for the six months ending December 31, 1883, are	$165,573 90
The annual salary of clerks to the eighteen agencies is, including the temporary clerks	115,967 00
Office expenses	11,125 63

One-half of which latter item is for stationery and printing, the balance for messengers, janitors, postage not provided by law, and certain office expenses for which the law makes no provision.

If but 10 cents should be allowed, as proposed, it would reduce the voucher fees one-third, or $165,573.90, less $55,191.30, being one-third to $110,382.60, and as their current expenses are shown to be $127,192.63, it would result in taking the sum of $16,810.03 out of their salary, nearly an average of $1,000 to each agent; otherwise they would be compelled to seriously embarrass this service by a compulsory false economy of management, and I do not think either branch of Congress desires retrenchment of expenses at such cost; nor do I think they will favor such a reduction when they become familiar with and appreciate the situation.

There are other expenses and liabilities incurred by the agents which are not included in those referred to as current. They are—

First. All office furniture (desks, chairs, file cases, &c.), which each agent has to provide at his own expense. In some cases, where the agency is in a Government building, he is saved a part of these. Eleven of the eighteen agencies are *not* so located.

Second. Erroneous payment or overpayment of pensions. In such instances the agent may, if no protest is made, recover such overpayment out of the future amount which may become due. The statutes do not, however, provide that the same shall be done, and it has often been questioned whether a recovery by such means could be justified, when the pensioner did not, by any act of misrepresentation or deception, contribute to such an error.

In any event, however, should the pensioner die, or the pension be terminated from other causes, there is no statutory remedy for the pension agent, and the loss to the amount of such an overpayment or erroneous payment is a personal one to him.

In the very large number of payments made, and the rapidity of the same, errors of this description cannot be wholly prevented.

It will be remembered that the statutes provide the manner in which pensions shall be paid. The voucher is executed at the home of the pensioner, and when received by the agent he has no means of ascertaining the correctness of the same. If the pensioner is falsely personated, and payment made to the wrong person, the agent has no relief from a personal liability, and must pay the pensioner when he presents himself, the erroneous payment being charged against him.

In other cases the agent may be unavoidably misled into error by this office upon misinformation given him.

Within the last three months several cases have been brought to my personal attention in the ordinary course of business; three of which I refer to by way of illustration.

First. A dependent mother was pensioned. The instructions, properly given to the pension agent, that the pension was to terminate on a certain date. The failure of an agency clerk to note on the agency roll the fact and date of the termination led to an over payment of the pension of a little more than five hundred dollars. This amount is a personal loss to the agent, and has already been charged against him.

Second. A pension was paid on forged vouchers. The probabilities are that the amount so paid ($45) can be recovered by suit; but as the expense attending the same would be a greater sum, the agent loses the same.

Third. In the allowance of a new pension the Pension Office was misled as to the proper address of the pensioner, and consequently misled the pension agent. In sending the vouchers to the address given, it fell into the hands of a person of the same name, and the pension, several hundred dollars, was erroneously paid to him. The discovery of the error soon followed, and the agent succeeded in securing a refundment, but his personal expenses were $40 to obtain this result; otherwise the amount so paid would have been disallowed by the accounting officers of the Treasury.

Admitting the necessity for expeditious payment of pensions, the risks to an agent are unavoidable, and he is held to a strict accountability in regard to all errors made. On the other hand, no risks are imposed upon the Government or the pensioners.

If the fee on vouchers should be fixed at $12.50 per hundred instead of $10 as proposed, it would approximate more nearly a proper compensation. On the bases of the present number of pensioners, and the regular expenses of an agency, the following would be the net compensation:

Fees on vouchers for one year	$137,978 25
Expenses of agents	127,192 63
Difference	10,785 62

Salaries of agents not included in above.

This difference, of course, is in favor of the several agents, a sum sufficiently small to provide for the many contingent expenses to which all of the agents are liable, which have not been included in the items of expense herein stated.

The consolidation of agencies, as proposed by the bill, would not, it is believed, be more favorable to the compensation of agents than at the present organization. In some cases the difference in pay to a chief clerk might be saved, but this would be more than counterbalanced by the increase in other directions.

Such agencies as might be consolidated would probably be those in localities where the average price of clerical labor is less than the average of the whole number of agencies, and the amount paid for expenses after the consolidation would, it is believed, be relatively greater than at present.

Such items of economy as could be counted on by consolidation of agencies would be as follows (based on the reduction contemplated in the pending bill):

The saving of the salaries of six agents, at $4,000 per annum, in the aggregate, $24,000 annually. The saving in rent, fuel, and lights, of the six discontinued agencies. The gross amount would not exceed $6,000 per annum, while on the other hand there would be a relative increase in the rents of some of the agencies, whose rolls would be largely

reased by such consolidation, requiring increased office accommoda-
n. The net saving on this item, if any at all, would be insignificant.
n the first 4,000 vouchers excepted, in the case of each agent, from a
allowance, the expense would be increased by 24,000 vouchers an-
ılly. That is to say, the number of vouchers for which no fee is
›wed would be 48,000, if the agencies should be reduced to twelve in
ıber. While with eighteen agencies the number of such vouchers
ıld be 72,000, a difference of 24,000 for which fees would be allowed
consolidation; *i. e.*, a net increase in expense.

The economy in the management of this branch of the service is, I
ieve, without its parallel in the Government service.

took occasion to compare this service with that of paying the Army,
ıort time since, on the disbursements of eighteen pension agents the
t fiscal year. The amount disbursed for pensions was $60,143,817.93,
a cost of $4.76 for each $1,000 disbursed. The amount disbursed by
several paymasters of the Army during the same period was
,382,164.56, at a cost of $23.24 for each $1,000 disbursed, and out of
whole amount disbursed, $8,432,601.49 were office payments.

The individual payments made by the several paymasters, as com-
ed with those of pension agents, is as remarkable. It is believed to
a maximum estimate to state that 200,000 payments would comprise
individual payments, while for pensions it was in round numbers
00,000.

As affording information upon the probable cost of paying the pen-
ns by other Departments, I will quote from a letter of the Treasurer
the United States, dated January 24, 1884, addressed to a member
the House Appropriation Committee.

The Treasurer says:

First. That all preparation for payment, preliminary correspondence with pension-
and examinations of vouchers, shall be performed by some other Bureau.
econd. That (printed) schedules be furnished this (Treasurer's) office, *each quarter*,
if practicable, once permanently, giving the name, address, amount of pension due,
when payable.
hird. That the schedules be so furnished that there need be no intermission in
daily drawing of checks; then it is estimated that the work of preparing and for-
ding, and keeping the accounts, after payment, of 342,000 checks per quarter, or
8,000 checks per year, at a rate per day of 4,600 checks, or thereabouts, for each
king day of the year, would require a force in this (Treasurer's) office of about
ersons, at an expense of upwards of $71,000. But, as has been stated, under this
mate, a few only of the pensioners would receive payments promptly; the remainder
ıld receive their checks at different times during the quarter.

The average length of time would be forty-five days' delay to all
pensioners on the roll.

The Treasurer further says:

hat estimates have been made of the force required to enable the office to make
ments at periods from fourteen to twenty-two days thereafter. To mail the checks
he entire list of pensioners within fourteen days, would probably require a force
50 persons at a cost of, say, $275,000; for eighteen days, a force probably of 210
ons, at a cost, approximately, of $225,000; and for twenty-two days, a force of
ıt 190 persons, at a cost of about $210,000 would be required.

t will not be overlooked that all the preliminary work, such as the
paration of vouchers, &c., the changes in rate, new pensioners, and
nge of post-office address, in more than 100,000 pensioners, nearly
in three of the whole number, shall be done in some other bureau;
), that no estimate is made for the cost of rent, fuel, lights, &c.

'o accomplish the same results on which the Treasurer bases his
imates, and make the payments *inside of ten days* (which he estimates
at fourteen days), will represent less than 25 per cent. of the labor
›ayment of pensions. That is to say, the salary and fees now amount

to $237,573, and the cost to agents, as compared with the above statement, would not exceed $25,000 to do the same work.

As there is other interesting matter in the Treasurer's letter on this subject, I will furnish you with an informal copy of the same.

For your information, I will briefly refer to the compensation allowed pension agents under former and recent statutes.

Under the act of 1864 the bases of the compensation were as follows:

First. Two per centum on all disbursements made by each agent to pensioners, provided that the same should not exceed the sum of $4,000 per annum.

Second. In addition to the 2 per centum on all disbursements, each agent was allowed a sum not to exceed $500 on the first $50,000 disbursed for clerk-hire, office rent, and other expenses of the agency. Also, a sum not to exceed $250 per annum for every additional $50,000 disbursed for like purposes.

Third. Each agent was entitled to use the mails on his official frank.

The act of July 8, 1870, further provides that, *in addition* to the compensation then allowed, and to be for all services rendered, including postage, the sum of thirty cents should be allowed for each voucher prepared and paid.

The act of June 20, 1874, reduced the fees on vouchers from 30 to 25 cents.

The act of June 16, 1878, fixed the present compensation.

Prior to July 1, 1877, there were between fifty and sixty agencies. In a few instances the 2 per centum compensation did not reach $4,000 per annum. But the bases of such compensation will, upon comparison with that now provided by law, commend the latter to your favorable consideration as the most economical and practicable.

To illustrate the two, I will make a computation showing what would be the average compensation to an average agency, if the laws in force prior to June 16, 1878, were now operative.

EXAMPLE.

Total paid for pensions during the year ending July 30, 1883	$60,143,817
The average to each agency	3,341,323
The compensation would be—	
Two per centum on disbursements limited to $4,000	$4,000
$500 for the first $50,000	500
$250 for each additional $50,000	16,250
Fees on voucher, at 25 cents	16,276
Total	37,026

The average cost to each agency, therefore, would be $37,026 per annum against the present actual average cost of $16,008, for each agency, including salary.

These comparisons I deem pertinent for the following reasons, to wit:

In former years, as appears from the office record, or rather the absence of such records prior to 1877, the whole machinery of the pension pay-service seemed to be regarded as an isolated branch of this Department; and in the administration of the affairs of the several agencies, they were left almost wholly to the agent. Such a condition of affairs could not be expected to produce other than want of uniformity of action among so many agents, a want of proper regard for the administrative authority vested by law in this Department, leading to an independence of action whereby many agents regarded themselves as

ponsible to no executive officer, and liable only in a proper account-
lity of funds placed in their hands.

'p to the year 1877, I find among the several annual reports of the
nissioners of Pensions no material matter relating to the pension
-service; no record or information of practical use from these offi-
; nothing to show the number of pensioners on the rolls of *any* of the
ncies or the amounts disbursed by any of the agents; nothing to
w the amounts paid for costs of disbursements, such as compensa-
to pension agents, fees to examining surgeons, &c., but the cost of
ursements included in the total paid for pensions of the few classes
tioned.

y immediate predecessor seems to have early appreciated this anom-
s condition of affairs, and in 1877, he required the several agents to
e periodical and annual statements containing most useful and val-
le information.

ly 1, 1877, the number of agencies was reduced from fifty-eight to
nteen, and afterwards increased to eighteen.

ne 16, 1878, the compensation of pension agents was changed, al-
ing a fixed annual salary, and a fee for each voucher prepared and
l, which is now in force.

have given this branch of the service my careful attention from the
, realizing the importance of the great trust imposed upon these
tlemen who are charged with such large pecuniary responsibilities
he Government, and to bring the efficiency and management of this
-service to the highest standard practicable, protecting the interests
the Government, and securing as far as possible the expeditious
ments of pension as they become due. There is no part of the great
sion system which has so readily yielded beneficial results, by reason
the changes which have been made during the past seven or eight
rs. These changes have not been experimental in their character,
brought about by a careful consideration of their feasibility, effi-
t administration, and economy of management.

may be pardoned if I emphasize the suggestion that the standard
hed by the pension pay-service has been brought about by the policy
his Department, assisted by the cordial co-operation of the several
sion agents, and the remedial legislation of Congress upon the re-
mendation made to it by the Department, and if its efficiency shall
t the approval of the Government and the thousands of pensioners
rgely interested, it should be equivalent to an indorsement of that
y, and such change as may be contemplated receive the most care-
attention and consideration.

uring the eight years immediately preceding July 1, 1877 (on which
the number of agencies was reduced from fifty-eight to seventeen),
e were nineteen pension agents who had defaulted, and the aggre-
of these defalcations, in excess of the official balances to their
lit, was upwards of $300,000. Besides these there were six other
sion agents who were guilty of misconduct impeaching their official
grity, such as misappropriation of public funds and other grave ir-
larities, but which involved no pecuniary loss to the Government.

nce July 1, 1877, there has not been a single instance of defalcation
he part of any pension agent, nor has the official integrity of any
of these officers been called into question, and not a dollar has been
to the Government in the disbursement of $283,220,273 by the ir-
larity of any of these officers during the past six years.

the preceding eight years a less amount, $237,421,458, was dis-
sed, complicated with many serious and grave irregularities.

The reasons herein stated are, to my mind, conclusive, that such a radical change as is proposed by the bill under consideration, will not operate to increase the efficiency of this branch of the service, but rather cripple in part the several pension agents, and will result in less prompt payment of pensions, and all things considered is not in any rational sense a measure of sound policy or of economy.

The amount appropriated ($10,000) for contingent expenses of pension agencies (see lines 40 and 41) may be sufficient for the purposes intended. If, however, the number of agencies should be reduced to twelve, this item of the appropriation should be increased to $15,000, and made immediately available as the preliminary work, and much that would affect such consolidation by July 1 would have to be done during the present fiscal year. In such agencies, in case of consolidation, as were divided in their geographical districts, entire new rolls would be necessary.

That portion of the bill commencing with section 2, relating to claim agents and attorneys, meets the requirements of the present situation.

The Committee of the House having this bill in charge, conferred with me frequently on the subject, and the bill, in its present shape, is the result of their mature deliberation, with such assistance as I could afford, after a full consideration of the subject.

I will not extend this report by reference to the subject in detail, but respectfully refer you to the report of that committee as well as a full one from myself, published in the Congressional Record, No. 100, April 23, 1884, pages 3524 to 3529, inclusive.

I am, sir, very respectfully,

W. W. DUDLEY,
Commissioner of Pensions.

Hon. WILLIAM B. ALLISON,
Chairman Committee on Appropriations, United States Senate.

ESTIMATES MADE BY THE TREASURER OF THE UNITED STATES OF THE PROBABLE COST TO HIS OFFICE TO PAY ALL PENSIONS AND KEEP ACCOUNTS THEREFOR, PROVIDED THAT ALL PRELIMINARY WORK, PREVIOUS TO THE DRAWING OF CHECKS, SHOULD BE DONE IN SOME OTHER BUREAU.

[This copy (informal) furnished by the Commissioner of Pensions, to accompany his report on House bill 6094 to the Committee on Appropriations United States Senate, of date May 9, 1884.]

TREASURY OF THE UNITED STATES,
Washington, D. C., January 24, 1884.

SIR: Referring to your verbal request that I furnish you with an estimate of the expense in this office which a system of paying pensioners by the Treasurer's checks would involve, I beg to say that (as you may have been informed) the subject of making such payments was considered by the Committee on Pensions of the Senate in 1877-'78; and I inclose copy of—

1. Senate Mis. Doc. No. 33, Forty-fifth Congress, second session, containing letters from the Secretary of the Interior and other officers, upon the subject.

2. A letter of the Treasurer of the United States to the Secretary of the Treasury, dated February 19, 1878, containing an estimate then made. I am not aware that this letter has been printed.

It is difficult to estimate the cost of the work to be done in this office

under such a system, and it is not known under what conditions it will be entered upon, nor within what period of time each payment will be required to be made.

The Treasurer's estimate made in 1878, contemplated the issuing of checks to the number of 3,500 each working day during the year, or some 250,000 per quarter. But that estimate did not provide for payment to pensioners on the day payment became due, or very soon thereafter. The payment on that basis for any quarter would be spread over nearly the entire period, some of the pensioners not receiving their checks until nearly three months after payment was due, and that length of time after other pensioners had been paid.

If the same conditions in regard to the work to be done in this office are now made that were proposed in February, 1878, as follows:

First. That all preparation for payments, preliminary correspondence with pensioners, and examination of vouchers shall be performed by some other Bureau, the Third Auditor's Office, for instance;

Second. That (printed) schedules be furnished this office each quarter, or, if practicable, once permanently, giving the name, address, amount of pension due, and when payable;

Third. That the schedules be so furnished that there need be no intermission in the daily drawing of checks,

Then it is estimated that the work of preparing and forwarding and keeping the accounts after payment of 342,000 checks per quarter, or 1,368,000 per year, at a rate per day of 4,600 checks, or thereabouts, for each working day of the year, would require a force in this office of about sixty-two persons, at an expense of upwards of $71,000, as follows:

1 chief of division	$2,500
1 assistant chief	2,000
1 clerk, class 4	1,800
1 clerk, class 3	1,600
2 check writers, at $1,400	2,800
2 check writers, at $1,200	2,400
7 check writers, at $1,000	7,000
2 check examiners, at $1,400	2,800
3 check examiners, $1,200	3,600
1 registering clerk	1,400
1 registering clerk	1,200
3 countersigners, at $1,600	4,800
10 envelope writers, at $900	9,000
5 envelope examiners, at $900	4,500
1 inclosing and sealing	1,200
1 inclosing and sealing	1,000
1 inclosing and sealing	840
1 messenger	840
1 messenger	720
1 messenger	660
To prepare accounts:	
10 clerks, class 1	12,000
56 Total	64,660
Add 10 per cent. due to sickness:	
6 and leave of absence	6,400
62 as total force	71,060

But, as has been stated, under this estimate a few only of the pensioners would receive payments promptly, the remainder would receive their checks at different times during the quarter.

Estimates have been made of the force required to enable the office to make payments at periods from 14 days after the pension is due to 22

days thereafter. To mail the checks for the payments to the entire list of pensioners within 14 days would probably require a force of 250 persons at a cost of, say, $275,000; for 18 days, a force of probably 210 persons, at a cost approximating $225,000, and for 22 days, a force of about 190 persons, at a cost of $210,000 would be required.

Under any of these estimates only a small portion of the large force would be required, after the checks have been mailed, for the remainder of the quarter; only the few who could be used in keeping accounts of the checks after payment and return would be needed for over two months. Of course no force sufficient to do this work could be obtained for the time only during which they were needed; nor, if employed for the whole year, could such a force be utilized on other work in this or other offices during the period after the mailing of the checks.

This method, therefore, will probably be considered by you so manifestly impracticable that a detailed estimate will not be required.

Pensions are now by law payable on the 4th days of March, June, September, and December. A change might be authorized so that payments would be made during each month of the quarter. To make this change without hardship to any pensioner, and without requiring them to wait, one-third of them for one-month, and one-third for two months after the money is due, it will be necessary that a payment be made in some cases for one month and in other cases for two months. For example: All pensions due in June having been paid, let one-third of the pensioners receive in July payment for one month, and one-third of them payment in August for two months. The remaining one-third would receive in September pay for the full quarter. The one-third paid in July for one month would receive in October pay for a full quarter, and the one-third paid in August for two months would receive pay for a full quarter in November. After that, the whole list would resolve itself into three classes, each paid quarterly, but one-third of the payments falling due in each month of the quarter.

Upon such a basis, allowing 114,000 checks per month, or 342,000 per quarter (this number being somewhat above the present number of pensioners), the force required to accomplish the work in this office so that the checks could be mailed within fourteen days from the receipt of the first schedule, is estimated as follows:

1	chief of division	$2,500
1	assistant chief	2,000
2	clerks Class 4	3,600
2	clerks Class 3	3,200
4	check writers, at $1,400	5,600
5	check writers, at $1,200	6,000
11	check writers, at $1,000	11,000
4	check examiners, at $1,400	5,600
5	check examiners, at $1,200	6,000
2	registering clerks, at $1,400	2,800
1	registering clerk	1,200
6	countersigners, at $1,600	9,600
16	envelope writers, at $900	14,400
8	envelope examiners, at $900	7,200
2	inclosing and sealing, at $1,200	2,400
2	inclosing and sealing, at $1,000	2,000
2	inclosing and sealing, at $840	1,680
2	messengers, at $840	1,680
2	messengers, at $720	1,440
1	messenger	660
79	Total	90,560

Add 10 per cent. due to sickness and leaves of absence, and the actual *number* required will be 87 persons, and the expense $99,160.

If 18 days were allowed for the same work, the force required would be 69, at an estimated cost of $79,760; if 22 days were allowed, 66 persons, at an expense of about $74,560, could accomplish the work.

These estimates are upon the condition that the schedules should be so promptly and regularly furnished to this office that those employed upon the work of drawing the checks shall never be delayed for want of the schedules.

These could possibly be furnished in advance so that the checks might be drawn and ready for mailing when the payment becomes due, subject to any changes, of which the Treasurer might be notified.

This course would enable the pensioners to receive payment earlier than if the checks were drawn from schedules furnished when the payment was due; it would not, however, decrease the force necessary to be employed.

In addition to the cost estimated for this office, it is necessary to consider any expense which might attend the payment of the checks at the Treasury offices.

It is believed that checks drawn on the assistant treasurer at New York would be acceptably received by nearly all pensioners, the only probable exception being those in the Far West, who would desire payment in San Francisco. The checks could be made payable by the assistant treasurer at New York alone, or (as is now the case with checks for interest on bonds) they might be made payable by any assistant treasurer of the United States.

What the additional expense, if any, attending the actual payment would be, cannot be determined until it is decided by whom the payment is to be made, if considerable additional labor is thrown upon any of the offices, an addition to the working force would be necessary.

The estimates submitted are the result of such consideration as I have been able to give to the subject; perhaps experience, and possibly the use of mechanical appliances to some extent, might, at some future time, reduce the cost here, but at this time I would not like to undertake the work with a force any smaller than that estimated for.

In this I do not venture upon any estimate of the increased cost in other offices of this Department, of the additional labor necessary in the preparation for payment or the settlement of the accounts after payment. It is presumed that you will desire to obtain information from the proper sources as to these points as well as any others that may be involved in the change proposed.

Very respectfully,

A. U. WYMAN,
Treasurer United States.

Hon. JOHN F. FOLLETT,
Of Committee on Appropriations, House of Representatives.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 90.

IN THE SENATE OF THE UNITED STATES.

MAY 19, 1884.—Ordered to be printed.

Mr. VAN WYCK submitted the following

RESOLUTION:

Whereas it is alleged that the New Orleans, Baton Rouge and Vicksburg, now New Orleans and Pacific, popularly known as the Backbone Railroad, for ten years constructed no portion of said road, but issued large quantities of bonds which they sought to negotiate and hold as a claim against the franchise of said road; and it is further alleged that said road, or other companies or persons, with a view of favorable action in Congress, have given or pledged money, bonds, or promises for political campaign or other purposes: Therefore,

Resolved, That the Committee on Public Lands be directed to make inquiry as to the truth of the above statements; also to ascertain the terms and conditions under which it transferred its claimed land grant, and any subsequent consideration connected therewith; with power to employ a stenographer and to send for persons and papers.

O

48TH CONGRESS, 1st Session. } SENATE. { MIS. DOC. No. 91.

IN THE SENATE OF THE UNITED STATES.

MAY 20, 1884.—Ordered to be printed.

Mr. BLAIR submitted the following

RESOLUTION:

Resolved by the Senate (the House of Representatives concurring), That the report of the Senate Committee on Education and Labor, on the relations between labor and capital, be printed, and the accompanying testimony; and that one hundred thousand additional copies be printed, of which thirty-three thousand shall be for the use of the Senate, sixty-six thousand for the use of the House of Representatives, and one thousand copies for the use of the Senate Committee on Education and Labor.

O

Calendar No. 788.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. 91, Part 2.

IN THE SENATE OF THE UNITED STATES.

MAY 20, 1884.—Submitted and referred to the Committee on Printing.

JUNE 20, 1884.—Reported by Mr. Hawley with amendments.

Omit the parts in [brackets] and insert the parts printed in *italics*.

Mr. BLAIR submitted the following

RESOLUTION:

Resolved by the Senate (*the House of Representatives concurring*), That the report of the Senate Committee on Education and Labor, on the relations between labor and capital [be printed, and] *with* the accompanying testimony, *be printed;* and that [one hundred] *fifty* thousand additional copies be printed, of which thirty-three thousand shall be for the use of the Senate, sixty-six thousand for the use of the House of Representatives, and one thousand copies for the use of the Senate Committee on Education and Labor.

C

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 92.

IN THE SENATE OF THE UNITED STATES.

MAY 20, 1884.—Ordered to be printed.

Mr. SLATER submitted the following

RESOLUTION:

Resolved, That the President be, and he is hereby, requested to inform the Senate by what authority commissioners have been appointed from time to time to examine and report upon sections of the Northern Pacific Railroad which were constructed and completed subsequent to the time within which, by the terms of the act of July 2, 1864, and acts and joint resolutions amendatory thereof and supplementary thereto, the said road was required to be completed.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. 92, Part 2.

IN THE SENATE OF THE UNITED STATES.

MAY 20, 1884.—Ordered to be printed.

MAY 21, 1884.—Referred to the Committee on the Judiciary.

MAY 26, 1884.—Reported by Mr. Garland, with an amendment, viz: Strike out the part within brackets and insert the part printed in *italics*.

Mr. SLATER submitted the following

RESOLUTION:

Resolved, That the President be, and he is hereby, requested to [inform the Senate by what authority commissioners have been appointed from time to time to examine and report upon sections of the Northern Pacific Railroad which were constructed and completed subsequent to the time within which, by the terms of the act of July 2, 1864, and acts and joint resolutions amendatory thereof and supplementary thereto, the said road was required to be completed.] *communicate to the Senate any information possessed by him or in the possession of any of the Executive Departments concerning the appointment of commissioners since July 4, 1877, in respect of examining sections of the Northern Pacific Railroad and the acceptance of any of such sections, together with the dates of the acceptance of such sections, respectively. And whether patents for lands have been issued to said company in respect of any part of said road completed since July 4, 1877, and, if so, to what extent, and whether any public lands are now reserved from sale or other disposal by reason of the building of said road or any part of the same, and, if so, to what extent.*

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 93.

IN THE SENATE OF THE UNITED STATES.

MAY 20, 1884.—Ordered to be printed.

Mr. SEWELL, from the Committee on Military Affairs, submitted the following statement, prepared by Hon. W. W. Dudley, Commissioner of Pensions, showing the names of the widows of officers in the Army and Navy who have been pensioned at the rate of $50 per month and over:

DEPARTMENT OF THE INTERIOR, PENSION OFFICE,
Washington, D. C., May 19, 1884.

SIR: In response to your inclosed request of the 15th instant, I have the honor to forward herewith a statement showing the names of the widows of officers in the Army and Navy who have been pensioned at the rate of fifty ($50) dollars per month and over.

Very respectfully,

W. W. DUDLEY,
Commissioner of Pensions.

Hon. W. J. SEWELL,
United States Senate.

P. S.—I would suggest that you have this printed as a Miscellaneous Document of Senate; and inasmuch as there are numerous calls for the same, I would be greatly obliged if you would have the clerk send me several copies, in case you do. W. W. D.

Pensions granted by special acts of Congress, at the rate of $50 per month, to the widows or other dependents of general officers since 1861.

PLEASANT A. HACKLEMAN, brigadier-general; died October 3, 1862, from wounds received in action; widow pensioned at the rate of $30 per month from date of death, under the general law; increased to $50 per month from date of death, by a special act. Certificate No. 761.

ISRAEL B. RICHARDSON, major-general; died in service November 3, 1862; the widow was pensioned at the rate of $30 per month from date of death, under the general law; increased to $50 per month from date of death, by a special act. Certificate No. 904.

W. H. L. WALLACE, brigadier-general; killed in action April 10, 1862; widow pensioned at the rate of $30 per month from the date of death, under the general law; increased to $50 per month from date of death, by a special act. Certificate No. 1248.

JOSEPH B. PLUMMER, brigadier-general; died in service August 9, 1862; widow pensioned at the rate of $50 per month from date of death, by a special act. Certificate No. 1253.

ISAAC I. STEVENS, brigadier-general; killed in action September 1, 1862; the widow was pensioned at the rate of $50 per month from the date of death, by a special act. Certificate No. 2169.

EDWARD D. BAKER, major-general; killed in action October 21, 1861; the widow pensioned at the rate of $30 per month from date of death, under the general law; increased to $50 per month from date of death, by a special act. Certificate No. 10265.

A. W. WHIPPLE, major-general; killed in action May 7, 1863; the widow pensioned at the rate of $30 per month from date of death, under the general law; increased to $50 from date of death, by a special act. Certificate No. 16935.

EDWIN V. SUMNER, major-general; died in the service March 21, 1863; the widow pensioned from date of death at the rate of $30 per month, under the general law; increased to $50 per month from August 14, 1876, by a special act. Certificate No. 37248.

DANIEL B. BIDWELL, brigadier-general; killed in action October 19, 1864; the widow pensioned at the rate of $30 per month from date of death, under the general law; increased to $50 per month from date of death, by a special act. Certificate No. 68180.

WILLIAM W. MORRIS, major-general; died in service December 11, 1865; the widow pensioned at the rate of $30 per month from date of death, under the general law. Increased to $50 per month from March 3, 1873, by special act. Certificate No. 71303.

HIRAM G. BERRY, major-general; killed in action May 3, 1863; widow pensioned at the rate of $50 per month from date of death, by a special act. Certificate No. 88618.

CHARLES S. LOVELL, brigadier-general; died January 3, 1871, while on the retired list, widow pensioned at the rate of $30 per month, as the widow of a colonel, under the general law; increased to $50 per month from June 19, 1878, as the widow of a brigadier-general, by a special act. Certificate No. 152616.

ROBERT ANDERSON, brigadier-general; died October 27, 1871, in service; widow pensioned at the rate of $25 per month, as the widow of a major. Increased to $50 per month from February 7, 1879, as the widow of a brigadier-general, by a special act. Certificate No. 158685.

ALEXANDER B. DYER, brigadier-general; died in the service May 20, 1874; the widow pensioned at the rate of $30 per month from date of death, under the general law; increased to $50 per month from March 25, 1876, by a special act. Certificate No. 165711.

JAMES B. MCPHERSON, major-general; killed in action July 22, 1864; the mother was pensioned at the rate of $50 per month from April 7, 1874, by a special act. Certificate No. 165856.

E. R. S. CANBY, brigadier-general; killed in service April 11, 1873; widow pensioned at the rate of $30 per month, from date of death; increased to $50 per month from June 4, 1874, by special act.

LORENZO THOMAS, brigadier-general; died in service March 2, 1875; widow pensioned at the rate of $50 per month from April 13, 1876, by a special act. Certificate No. 173339.

JAMES SHIELDS, brigadier-general; died June 1, 1879, while out of service; widow pensioned at the rate of $100 per month from date of death, by a special act. Certificate No. 186359.

SAMUEL P. HEINTZELMAN, major-general; died May 1, 1880, while in the service; widow pensioned at the rate of $50 per month from December 23, 1880, by a special act. Certificate No. 192257.

CLEMENT A. FINLEY, brigadier-general and surgeon-general; died September 8, 1879, in service; widow pensioned at the rate of $50 per month from April 25, 1882, by a special act. Certificate No. 7558.

ROBERT B. MITCHELL, brigadier-general; died January 26, 1882, while out of service; widow pensioned at the rate of $50 per month from June 27, 1882, by a special act. Certificate No. 196683.

SILAS CASEY, brigadier-general; died January 22, 1882, while in service; widow pensioned at the rate of $50 per month from July 15, 1882, by a special act. Certificate No. 198243.

ZACHARY TAYLOR, lieutenant-colonel, United States Army; the daughter pensioned at the rate of $50 per month by special act. No. 7571.

LOVELL H. ROUSSEAU, brigadier-general; died January 7, 1869, in service; widow pensioned from that date at the rate of $30 per month; increased to $50 per month from April 13, 1876, by special act. Certificate No. 126625.

GEORGE A. CUSTER, major-general; killed in action June 25, 1876; widow pensioned from that date at the rate of $30 per month, with rank as that of a lieutenant-colonel; increased to $50 per month from July 31, 1882, by a special act. Certificate No. 178408.

WILLIAM H. FRENCH, brevet major-general; died May 20, 1881, in service; widow pensioned at the rate of $50 per month from August 5, 1882, by special act. No. 197269.

GEORGE D. RAMSAY, brigadier-general; died May 23, 1883, in service; widow pensioned at the rate of $50 per month from August 8, 1882, by special act. No. 197138.

GOUVERNEUR K. WARREN, major-general; died August 8, 1882, in service; widow pensioned at the rate of $50 per month from March 2, 1883, by special act. No. 199602.

ALFRED B. MEACHAM, chairman of peace commission to Modoc Indians; died February 16, 1882; widow pensioned at the rate of $50 per month from March 2, 1883, by special act. No. 201713.

[Exceptional to class.]

Names of the widows of officers of the Navy and Marine Corps now in receipt of a pension at the rate of fifty dollars per month under the provisions of special acts of Congress.

DAVID D. FARRAGUT, Admiral: widow pensioned at the rate of $2,000 per annum by special act approved May 28, 1872.

WILLIAM M. WOOD, surgeon-general, widow of; special act approved June 27, 1882.

WILLIAM REYNOLDS, rear-admiral, widow of; special act approved June 16, 1882.

HENRY K. HOFF, rear-admiral, widow of; special act approved May 17, 1882.

HENRY H. BELL, rear-admiral, widow of; special act approved June 27, 1877.

CHARLES H. DAVIS, rear-admiral, widow of; special act approved June 10, 1880.

JOHN A. WINSLOW, rear-admiral, widow of; special act approved March 3, 1877.

JAMES L. LARDNER, rear-admiral, widow of; special act approved July 15, 1882.

HIRAM PAULDING, rear-admiral, widow of; special act approved February 21, 1881.

JOHN RODGERS, rear-admiral, widow of; special act approved August 5, 1882.

JAMES H. SPOTTS, rear-admiral, widow of; special act approved August 5, 1882.

LOUIS M. GOULDSBOROUGH, rear-admiral, widow of; special act approved March 16, 1882.

JOHN GALLAGHER, captain, widow of: special act approved March 3, 1879. This reinstated the pensioner on the roll at $50 per month to which she is entitled under the general law. Act of August 11, 1848.

JAMES H. FRAILEY, commodore, widow of; special act approved February 7, 1879.

CHARLES S. MCCAULEY, commodore, widow of; special act approved February 23, 1881.

ISAAC MCKEEVER, commodore, widow of; special act approved March 3, 1879.

JOHN GUEST, commodore, widow of; special act approved March 3, 1881.

JOHN HARRIS, colonel United States Marine Corps, widow of; special act approved March 3, 1879.

WILLIAM DULANEY, colonel United States Marine Corps, widow of; special act approved April 25, 1882.

LEVI TWIGGS, major United States Marine Corps, widow of; special act approved June 10, 1882, from $25 per month to $50.

FREDERICK COLLINS, lieutenant, widow of; special act approved July 22, 1882, increased the rate from $25 to $40 per month.

[In this class it is not stated whether the present rate is the original allowance or increase except where the rank is less than the relative rank of a general officer in the Army.]

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 94.

IN THE SENATE OF THE UNITED STATES.

MAY 22, 1884.—Referred to the Committee on Education and Labor and ordered to be printed.

Mr. BLAIR presented the following

MEMORIAL

OF

NUMEROUS LABOR ASSEMBLIES OF NEW YORK,

PRAYING

The passage of the several measures for the better protection of American labor.

To the Representatives of the people, in the United States Congress assembled:

Whereas, it having come to the knowledge of the working people of the State of New York that some of our friends have presented several bills, which are now pending before your honorable body, and are of the utmost importance to all the working classes of this country, viz:

A bill for the general incorporation of trades unions.

A bill to establish a national bureau of labor statistics.

A bill to prevent the importation and migration of foreigners and aliens under contract or agreement to perform labor in the United States, &c.

A bill to prohibit the employment of operatives on railroad trains longer than twelve consecutive hours out of twenty-four, fixing penalties, &c.

A bill for the enforcement of the eight-hour law.

A bill to regulate lake and marine shipping.

A bill regarding the Chinese restoration act, &c.:

Therefore,

Be it resolved, That we tender our most sincere thanks to those who have or may hereafter interest themselves in our behalf, and that we hold their names in ever grateful remembrance, and we most respectfully and earnestly ask and request all members of the present United States Congress to lend their aid and hearty co-operation in passing the above-named bills. As Congress called upon us in 1861 to suppress the Rebellion, and thereby preserve the integrity of the Union, the su-

premacy of law, and the liberties of all men under the law, we claim that we are fully warranted in asking this favor.

TIMOTHY CORCORAN, M. W.,
PETER CATTANOCH, R. S.,
Union Assembly 68 *K. of L., representing* 1,500 *members.*
MICHAEL J. GALLAGHER, M. W.,
[SEAL.] FRANK G. DEVLIN, R. S.,
Mitre Assembly 2640 *K. of L., representing* 400 *members.*
JAMES COUGHLIN, M. W.,
[SEAL.] OSCAR H. BOWMAN, R. S.,
Rensselaer Central Assembly K. of L., representing 250 *members.*
JOSEPH FEEUYT, M. W.,
[SEAL.] MARK H. DAVIS, R. S.,
Alpha Assembly 2639 *K. of L., representing* 400 *members.*
PETER F. HANLEY, M. W.,
[SEAL.] OTTO A. MILLER, R. S.,
Barbers' Assembly 3025 *K. of L., representing* 278.
W. N. RICHARDSON, M. W.,
[SEAL.[GEORGE S. PAGE, R. S.,
Lansingburgh Assembly No. 2934, 184 *members.*
JOHN R. HOENES, M. W.,
[SEAL.] R. TSCHUNN, R. S.,
Cigarmakers' Assembly 2714, 201 *members.*
GEORGE E. BAKER, M. W.,
[SEAL.] LAWRENCE DOWNEY, R. S.,
West Troy Assembly, 379 *members.*

TROY, N. Y., *May* 7, 1884.

D. E. POTTER,
Chairman Committee.

102 *North Third street.*

Given in under our hand and with the seal of our union attached, viz, Iron Molders' Union, No. 2, Troy, consisting of 800 members, and by their order.

JOHN F. CAHILL,
President.
PATRICK KILDINE,
Vice-President.
JOHN H. MEEHAN,
Recording Secretary.
JOHN O'KEEFE,
Finance Secretary.
CARROLL HENDY,
Treasurer.

JOHN J. EVERS,
Corresponding representative of Iron Molders' Union, No. 2,
of Troy, New York.

TROY, N. Y., *May* 7, 1884.

D. E. POTTER,
Chairman Committee, 102 *North Third street, Troy.*

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 95.

IN THE SENATE OF THE UNITED STATES.

MAY 22, 1884.—Referred to the Committee on Public Buildings and Grounds and ordered to be printed.

Mr. COCKRELL submitted the following

RESOLUTION:

Resolved, That the Committee on Public Buildings and Grounds inquire into and ascertain the cost, character, and efficiency of the file-holders and other means now used by the various Departments of the Government for the preservation of the public records, documents, archives, and papers from destruction or injury by fire, water, insects, or otherwise, and, upon receiving such information, to consider and determine the best, safest, and most economical means, by file-holders or otherwise, for so preserving such records, &c., and to report by bill or otherwise.

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 96.

PRELIMINARY RECONNAISSANCE

OF THE

BOUNDARY LINE BETWEEN THE UNITED STATES AND MEXICO.

MAY 26, 1884.—Ordered to be printed.

DEPARTMENT OF STATE,
Washington, February 25, 1884.

SIR: Adverting to the item relative to the international boundary survey between the United States and Mexico (page 208 of the Estimates of appropriations for the fiscal year ending June 30, 1885), and to the statement in reference to that matter in the letter to your committee of December 31, 1883, I have now the honor to transmit, for the further information of the committee, the inclosed copy of a letter from the Secretary of War, of the 17th of November last, accompanied by a report, made by Lieutenant Symons, of the Corps of Engineers, United States Army, of the preliminary reconnaissance of the boundary line between the United States and Mexico, in pursuance of the instructions of this Government and agreeably to the treaty of July 29, 1882, between those countries. As the Department had but one copy of the map and designs inclosed with Lieutenant Symons's report, and as these have been sent to the chairman of the Committee on Appropriations of the House of Representatives, by letter of even date herewith, it has been impracticable to furnish your committee with copies of the same. Should they be desired, however, the Secretary of War will be asked to supply this Department with an additional copy of the map and designs for transmission to your committee.

I have the honor to be, sir, your obedient servant,
FRED'K T. FRELINGHUYSEN.

The Hon. W. B. ALLISON,
Chairman Committee on Appropriations, United States Senate.

WAR DEPARTMMNT,
Washington City, November 17, 1883.

SIR: I have the honor to transmit herewith the report, dated the 14th instant, of Lieut. Thomas W. Symons, Corps of Engineers, of the preliminary reconnaissance of the boundary line between the United States and Mexico from the Rio Grande at El Paso del Norte to the Pacific Ocean, made in obedience to instructions contained in the letter to that officer, dated June 20, 1883, from the Department of State, and in fulfillment of the requirements of Article I of the convention between the two countries, ratified March 3, 1883.

Very respectfully, your obedient servant,
ROBERT T. LINCOLN,
Secretary of War.

The Hon. SECRETARY OF STATE.

REPORT OF PRELIMINARY RECONNAISSANCE OF THE BOUNDARY LINE BETWEEN THE UNITED STATES AND MEXICO.

WASHINGTON CITY, D. C.,
November 14, 1883.

The Hon. SECRETARY OF WAR,
Washington, D. C.:

(Through the Chief of Engineers United States Army.)

SIR: I have the honor to submit the following report of the preliminary reconnaissance of the boundary line between the United States and Mexico from the Rio Grande at El Paso del Norte to the Pacific Ocean.

This reconnaissance was made in obedience to instructions contained in the letter to me of the Secretary of State, of June 20, 1883, and in fulfillment of the requirements of Article I of the convention between the two countries, ratified March 3, 1883.

This report is submitted to you in obedience to instructions from the Secretary of State.

Article I of the convention requires that this report shall give:

A.—The condition of the present boundary monuments.

B.—The number of destroyed or displaced monuments.

C.—The places, settled or capable of eventual settlement, where it may be advisable to set the monuments closer together along the line than at present.

D.—The character of the new monuments required, whether of stone or iron; and their number, approximately, in each case.

THE ORIGINAL MONUMENTS.

The total length of the boundary line from El Paso del Norte to the Pacific Ocean, including about 28 miles of the Colorado River, is 700 miles. Upon this line there were originally built 52 monuments at distances apart varying from one-eighth of a mile to 90 miles, and averaging over 13½ miles apart.

The monuments originally erected were of various kinds. A fine marble pyramidal monument, with pedestal, the whole about 15 feet high, marks the initial point of the boundary on the Pacific Ocean. A few were of cast iron, built up of plates three-eighths of an inch thick, in form of tapering four-sided shafts, 6 feet high, with pediments. At some important points monuments were built of cut-stone laid in cement, pyramidal in form, and holding stones bearing suitable inscriptions. Others were of stones closely laid, without cement, in form of a four-sided pyramid; some had inscription stones and some had none. Still others were simply of rocks piled together in symmetrical heaps.

A.—*Condition of present boundary monuments.*

Some of these monuments are gone entirely; some few of those that remain are in good condition, but by far the greater number are dilapidated and injured to a greater or less degree. Of some, merely traces remain, which are fast becoming obliterated.

The boundary was originally run in three sections, and the monuments numbered in each section.

THE EASTERN SECTION.

The eastern section, 295 miles long, extending from El Paso del Norte to the 111th meridian, where the azimuth line to the Colorado com-

mences, was marked with twenty-seven monuments, placed at distances apart varying from one-eighth of a mile to 43 miles; average distance a little over 11 miles.

Of these twenty-seven monuments three are entirely gone, and no trace of them could be found; they are Nos. 11, 13, and 24. Nos. 1, 2, 3, 4, 6, 8, and 10 are fine monuments in a good state of preservation and need not be renewed. All the others remaining, Nos. 5, 7, 9, 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, and 27, are dilapidated and fast disappearing and should be reconstructed. Of No. 12, only a faint trace exists—so faint as to cause doubts of its identity—and it may be considered as practically destroyed.

MIDDLE SECTION.

In the middle section, the azimuth line, extending from the 111th meridian to the Colorado River, a distance of 237 miles, there were nineteen monuments placed, numbered from I, at the Colorado, to XIX, near the meridian. They were placed at distances apart varying from one-half a mile to 45 miles, an average distance of about 13 miles. Of these six are gone, and no trace of them could be found; they are Nos. I, III, IV, V, VII, and VIII; of No. XI only a slight trace remains. No. II is a fine iron monument on the bluff overlooking the Colorado River; the remainder are piles of loose rocks.

WESTERN SECTION.

On the western section, from the Colorado River to the Pacific Ocean, a distance of 141 miles, there were originally placed six monuments; the one on the Pacific was of marble, the others were of iron. The distances apart varied from 1½ to 90 miles; average distance over 28 miles.

Of these six monuments three have been destroyed, so that but faint traces of them remain; they are Nos. II, III, and VI. The other three, Nos. I, IV, and V are in good condition.

B.—*The number of destroyed or displaced monuments.*

Of the original fifty-two monuments fourteen have been destroyed. None have been displaced or moved in any manner.

This leaves 38 monuments, many of them in a bad state of decay, to mark the boundary line of 700 miles, leaving an average distance of about 19 miles between the monuments.

C.—*The places, settled or capable of eventual settlement, where it may be advisable to set the monuments closer together along the line than at present.*

The following table is given showing the distances apart of the original monuments and of the existing ones, good and bad. The same thing is shown in the accompanying sketches of the boundary line, Lines I and II.

It will be seen from the table that there are long distances, in two cases over 100 miles, destitute of any proper and authentic monument; there are many instances where the distances are from 10 to 45 miles. These are all, at present, much too great where the land is of any value, especially when they are not of such a nature and so placed that they can be seen, even with an instrument, one from another.

EASTERN SECTION.

No. of monument.	Location of monument.	Distances between original monuments.	Present condition of monument.	Distances between present monuments.
		Miles.		*Miles.*
1	Initial point on Rio Grande		Good	
2	On hill near Rio Grande	.4	do	.4
3	On edge of Great Mesa	2.6	do	2.6
4	On mountain (no name)	43.0	do	42.0
5	Little north of Lake Palomas	18.2	Badly damaged	18.2
6	South of Tres Hermanos Mountains	7.8	Good	7.8
7	South of Carrizillo Spring	13.3	Scattered about; badly damaged	13.3
8	End of 100 miles on parallel 31° 47′	14.2	Good	14.2
9	Near Ojo de los Mosquitos	15.3	Damaged	15.3
10	Commencement of line on 31° 20′	15.5	Good	15.5
11	In valley of Los Playas	23.5	Destroyed	
12	Eastern foot of Animas Mountains	4.0	Faint and doubtful trace remains	
13	On Animas Mountains	3.6	Destroyed	
14	Animas Valley, near San Luis Springs	8.1	Monument and inscriptions in fragments.	34.2
15	Animas Valley, west of San Luis Springs.	2.7	Slightly damaged	2.7
16	Guadalupe Cañon	12.3	Damaged	12.3
17	San Bernardino Springs	11.0	do	11.0
18	Do.	.1	do	.1
19	Pedrogosa Mountains	10.8	Slightly damaged	10.8
20	On Rio San Pedro	41.0	do	41.0
21	South of Huachuca Mountains	15.4	do	15.4
22	Do.	2.8	Dilapidated inscription gone	2.8
23	Near town of La Noria	4.8	do	4.8
24	Patagonia Mountains	6.4	Disappeared; could not find it	
25	Buena Vista, Santa Cruz River	9.4	Badly damaged	15.8
26	Town of Nogales	6.4	Very badly damaged	6.4
27	Pajarita Mountains, junction of meridian 111°, and parallel 31° 20′, commencement azimuth line to Colorado River.	7.9	Thrown down	7.9
		295.5		295.5

MIDDLE SECTION.

I	Colorado River bottom near bank		Been washed away	
II	On edge of desert bluff	1.9	Good	1.9
III	In desert	.5	Disappeared (covered with drifting sand).	
IV	Tinajas Mountains	44.9	Cannot be found	
V	Sierra del Tule	27.1	do	
VI	Sierra de Quito baquito	35.8	In place	108.3
VII	Quito baquito	8.2	Destroyed	
VIII	Do	.6	do	
IX	Sierra del Sonoyta	10.7	In place	10.5
X	West ridge Sierra de la Naris	14.4	do	14.4
XI	Old road, Sonoyta to Cobota	2.6	Slight trace remains	2.6
XII	East ridge Sierra de la Naris	1.7	In place	1.7
XIII	Road, Tubac to Cobota	27.7	do	27.7
XIV	Sierra de la Union	13.0	do	13.0
XV	Sierra de Pozo Verde	16.0	do	16.0
XVI	East of road, Altar to Tucson	8.4	do	8.4
XVII	Cerro de Sonora (Fresnal)	3.9	do	3.9
XVIII	Sierra de las Pajaritos	16.1	do	16.1
XIX	Do	3.0	In place; very small	3.0
27	At corner meridian 111°, parallel 31° 20′.	.3	Thrown down	.3
		236.8		236.8

WESTERN SECTION.

I	On bluff at Pacific Ocean		In place; defaced and chipped	
II	Town of Tia Juana	4.9	Base remains	
III	On mesa, between Otay and Tia Juana	6.7	Very slight trace of base remains	
IV	North of New River, Well desert	89.5	Good	101.0
V	Do	1.8	do	1.8
VI	On bluff at Colorado River	37.8	Slight and uncertain trace remains	
			To Colorado	37.9
		140.6		140.6

To properly mark the boundary line the monuments should be placed much nearer together than at present, and should be so located that each can be seen from its nearest neighbor on either side. No absolute distance could be adopted and rigidly adhered to, but advantage should be taken of the accidents of the ground to place the monuments in the most conspicuous locations. They should be nearer together where the lands have a present or prospective value for mining, agriculture, or other purposes, and where disputes are liable to arise.

The treaty between the two countries provides that the monuments shall not be more than 8,000 meters apart (about 5 miles). This fixes the extreme limit, and, *with this in view*, a careful study of the country and its present and prospective needs causes me to recommend:

First. That this limit of 8,000 meters be adhered to in the deserts which are uninhabited and in all probability utterly and forever incapable of settlement.

Second. This distance should be reduced and the monuments put about 2 miles apart on those portions of the line where the land is, or must, in the nature of things become of value.

Third. In some few particularly rich and important localities this distance should again be reduced to 1 mile, which would be the least distance between the monuments, except where they already exist closer together.

To particularize, I would recommend—

1st. For the first 50 miles west from the Rio Grande until the valley of Lake Palomas is reached, the monuments to be 8,000 meters apart. This portion of the country is a hopeless, sandy desert.

2d. From the valley of Lake Palomas all the way along the boundary line to the 111th meridian, the monuments to be about 2 miles, or 3,200 meters apart. This country is nearly all well grassed, some is covered with timber, it is quite well watered, and the mountains are rich in mining possibilities. The rainfall has been increasing throughout this section of late years in a marked degree, and everything points to a more highly productive climate in the future. In addition to the monuments mentioned above, a distance of 2 miles apart, a few should be placed at the following localities:

About the head of Lake Palomas.

In the mountainous region known as the Monument mining district, southwest of Carrizilillo Springs.

In the vicinity of Ojo de los Mosquitos, or Moscow, as it is commonly called by Mexicans.

Across the southern end of the Animas Valley.

At the crossing of the San Pedro River.

Across the San Rafael Valley through the town of La Noria.

At Buena Vista, on the Santa Cruz River.

At the town of Nogalez.

3d. From the 111th meridian to the Colorado River the monuments to be at the limit, 8,000 meters apart, with the exception of a few in the vicinity of Monuments XV, XVI, and XVII, about 3 miles apart, and in the Sonoyta Valley about 2 miles apart.

4th. From the Colorado to the eastern summit of the Jacuma or Coast Range Mountains, the monuments to be 8,000 meters apart, with the exception of three near the Colorado to be 3 miles apart.

5th. From the eastern summit of the Jacuena Mountains to the Pacific Ocean, the monuments to be about 2 miles apart, and in addition three monuments to be at a distance apart of 1 mile at the following places:

Town and valley of Campo.

Crossing of Tecate River.
Town of Tia Juana.

The number of monuments, new and old, required on this basis is 267 for the distance of 700 miles, giving an average distance between the monuments of about 2⅔ miles.

There are eleven monuments, solid, well constructed, and distinctive, and which are in every way suitable and in good condition. To complete the marking of the line according to the recommendations above, would require 256 new monuments and old ones rebuilt and remodeled according to one or the other of the designs of which sketches are sent herewith.

Upon Line III of the sketches of the boundary line, sent herewith, I have indicated the disposition of the monuments according to the above recommendations.

In this connection I would call attention to the supplemental report herewith given, and which looks to a modification of the treaty and the disposition of the monuments according thereto.

D.—*The character of the new monuments required, whether of stone or iron, and their number, approximately, in each case.*

By observation of the old monuments and the causes which have led to their destruction and deterioration, we can best determine the character of the new monuments which it is best to adopt. The causes of destruction are various. The iron monuments near San Diego and near the Colorado are said to have been destroyed by Indians to procure the iron for arrow-heads and other purposes; some have been destroyed that smugglers might carry on their operations with greater safety and impunity; many have been injured, defaced, and demolished through the wanton desire for destruction so inherent in lawless minds, and many others have disappeared and been injured through the agency of natural causes. It is believed that a state of civilization has now been attained when the monuments would no longer be molested, but on the contrary would be carefully guarded by the citizens of both countries.

The rapid development of the Southwest has found the present boundary line insufficiently marked, and there can be no doubt that more complete and perfect definition is needed. The monuments which were sufficient and suitable when the boundary line was run thirty years ago are so no longer.

The monuments should be of such form and color as to be readily seen and distinguished, and should all have suitable and permanent inscriptions, and be as near alike as circumstances will permit, and should, of course, be as endurable and indestructible as it is possible to make them at a reasonable cost.

A simple pile of stones is not a proper monument for the boundary line, as it is easy to destroy and leaves no trace behind, and this is especially the case in the country which is overrun with prospectors and miners, who build their claim, mining, and mill-site monuments in this manner. Section corners are also similarly marked, and along some portions of the boundary line where the official monuments are far apart, the citizens have run the line in an approximate manner and built rock-pile monuments. This is particularly the case within a hundred miles of the Pacific, where American and Mexican surveyors have run trial lines and built these monuments over quite a wide belt of country.

Careful and mature consideration induces me to recommend that in

every case where new monuments are erected that they be of iron, or of iron and stone combined.

Where the country is of such a nature that wagons can be used with advantage the monuments might be as described in Article IV of the treaty, and shown in cross-section in the accompanying drawing, marked *Monument No.* 1. This monument is 2 centimeters in thickness, is 6 feet high, and weighs 500 pounds. It is contemplated to fasten it in place by means of a central post of endurable wood and with four diverging iron rods connected at their lower ends with logs or large rocks sunk 4 or more feet into the ground.

In all places where wagons cannot well be used, and where stone is abundant and of good quality, I would recommend a stone monument 3 or 4 feet high, cemented together in the best manner and surmounted by a four-sided, tapering, iron shaft, 3 feet high, as shown in cross-section in the accompanying drawing, marked *Monument No.* 2. This iron shaft would weigh about 200 pounds, and could be easily transported on the back of a mule.

It is contemplated to fasten this in place by means of a wooden post sunk well into the ground, with bolts going through it and the monument and riveted, and with four diverging iron rods leading to claws or plates of iron at the bottom of the stone monument.

It would be best to paint all the monuments white, as they would thus be more readily seen and distinguished. An exception might be made to those located on the summit of a mountain range, which should be painted red.

With the exception of the existing monuments, made of cut stone, marble, and iron, in a good state of preservation, all the old monuments should be rebuilt and surmounted with the small iron shafts, as in the drawing of Monument No. 2.

The approximate number of the large iron monuments needed is 99, and of the smaller ones, 157.

SUPPLEMENTAL REPORT.

The foregoing recommendations are based on the requirements of the treaty Articles V and IV, limiting the weight of the large iron monuments to not less than 500 pounds, and the thickness to not less than two centimeters, and prescribing that the distances between monuments should not be more than 8,000 meters.

I would, however, respectfully and earnestly suggest that these Articles V and IV of the treaty be modified to conform to the recommendations which follow.

I would recommend that the thickness of the large iron monuments be not greater than 1½ centimeters (about three-fifths of an inch), and the weight not more than 375 pounds. This thickness is deemed sufficient, in consideration of the manner in which it is proposed to erect it, with a solid wooden post inside. The greatest danger that the monuments will be subjected to will be from their being used as targets for rifle and pistol practice, and three-fifths of an inch thickness, combined with their shape and wood centers, is sufficient to withstand all evil from this source.

I would also recommend that upon certain portions of the line the limit of distance between monuments be increased beyond 8,000 meters, as follows:

1st. Upon that portion of the boundary line westward from the Rio Grande, between monuments 3 and 4, a distance of 43 miles, I would

place but three monuments. This would leave intervals of about eleven miles or 17,000 meters. This is a sandy, waterless desert, very difficult to cross and which will never have any economical value.

2d. From a point 16 miles west of Quito baquito, on that portion of the boundary line running from the corner near Nogales to the Colorado, I would place monuments at the following locations only:

1. One at the Presa about midway between Monuments V and VI (as originally put in).
2. One near the eastern base of the Sierra del Tule.
3. One near the western base of the Sierra del Tule.
4. One at the eastern base of the Tinajas Altas Mountains.
5. One at the western base of the Tinajas Altas Mountains.
6. One five miles to the east of the existing monument on the Colorado.

These would be at about the following distances apart, in miles, from existing Monuments No. VI to No. II: 20, 12, 15, 14, 13, 35, 5—an average distance apart across this desert of about 16 miles.

These would be all the monuments necessary under any conceivable circumstances. A more defined boundary line would subserve no imaginable purpose. This portion of the line traverses a most utter, horrible, and absolutely hopeless desert, extending from the Sonoyta Valley to the Colorado, and from the Gila River to the Gulf of California. It is uninhabited by man, beast, or bird, and only the most stringent necessity will ever cause a human being to enter within its confines. There is no permanent water in the whole region; it can only be obtained in small quantities and with great uncertainty in holes and natural tanks among the rocks during the rainy season, which here is of short duration and sometimes lacking altogether for the year. Neither is there any feed for animals in the region. In running a boundary line across this country, water and feed for both animals and men would have to be transported from the Colorado and Sonoyta Valleys, and the work would be attended with great risk, hardship, and expense, and when done would have no corresponding value.

The boundary line marked by the six new monuments mentioned above would be very well defined, inasmuch as there would be two monuments in each level flat and one on each side of each range of mountains.

3d. Upon that portion of the boundary line between Upper and Lower California, lying between the Colorado and the eastern summit of the Jacuma Mountains, I would recommend that the limit of distance between monuments be raised to 16,000 meters or ten miles. No necessity exists for placing them nearer together, and upon these desert plains they would answer every purpose at this distance.

This would reduce the approximate number of large monuments required to 69, and the total number to 237, and give an average distance between the monuments throughout the line of a little less than three miles.

I have indicated upon Line IV of the sketches of the boundary line the disposition of the monuments according to the above supplementary recommendations.

In all other respects except those cases specifically mentioned, the previousrecommendations remain unchanged.

I give herewith a personal and descriptive report of the reconnaissance, which may be of some value in the future operations of the survey.

PERSONAL AND DESCRIPTIVE REPORT OF THE RECONNAISSANCE OF THE BOUNDARY LINE BETWEEN THE UNITED STATES AND MEXICO, MADE DURING THE SUMMER OF 1883.

In obedience to instructions from the General of the Army, contained in Special Order No. 139, P. 1, dated June 18, 1883, I reported to the Secretary of State and received the following instructions:

DEPARTMENT OF STATE,
Washington, June 20, 1883.

Lieut. T. W. SYMONS, U. S. A.,
War Department, Washington, D. C.:

SIR: By a letter of the 15th instant, the Secretary of War informs me that you have been directed to report to me for instructions, and as ready to perform such duty as may be required of you under the convention between the United States of America and the United States of Mexico, of July 29, 1882 (proclaimed March 5, 1883). Copies of that convention are inclosed herewith for your information and guidance. You will observe that the final survey is to be accomplished by a regular international commission to be appointed by the two Governments in diplomatic concert. To prepare the way for the speedier operation of this final commission, each Government has engaged to effect a preliminary reconnaissance by means of officers of its regular army on the frontier, with the object of collecting information and making practical suggestions for the use of the later commission. It is for this duty that you have been detailed by the Secretary of War, and an escort furnished you. Your duties are described and defined in Article I of the convention.

On its side the Mexican Government has appointed a preliminary reconnaissance party, composed of the following officers:

General Ignacio Revueltas, in charge of the reconnaissance.
Capt. Carlos Salinas, of the section of engineers, secretary.
Dr. Emilio Zertuche.
Lieut. Col. Luis G. Vicario, of the engineer corps.
Capt. Manuel M. Plata.
Capt. José Delgado.
Capt. Alejandro Ordorisa, with an escort of fifty men.

You will proceed to El Paso del Norte and there place yourself in communication with General Revueltas and arrange with him as to the most convenient way of carrying out the provisions of Article I of the convention. Although the respective reconnaissance parties are to act in concert as far as may be practicable, it is not contemplated that their reports shall be jointly made, or that the joint action of yourself and General Revueltas shall have a diplomatic character. You will report to your Government the results of your operations, and he will do the same to his Government. It is expected, however, that the two reconnaissance parties will mutually aid each other, and in traversing country open to the raids of hostiles, prudence will doubtless suggest the union of the respective parties for greater security. Hostilities with the predatory Indians should of course be avoided in every possibly way, as calculated to disturb the purely scientific and practical operations of the party.

Your report, embracing the points specified in Article I of the convention, is to be made to the Secretary of War, and will be by him communicated to this Department. The reconnaissance being a military operation, I am informed by the Secretary of War, under date of April 7, that your mileage may be paid from the item for mileage of officers in the appropriation for the support of the Army, and the transportation and subsistence required during the reconnaissance be drawn from the quartermaster's and subsistence departments. I am also informed by a letter of the Secretary of War of June 15, communicating a letter from General John G. Parke, Acting Chief of Engineers, dated June 13, that such instruments as may be on hand for issue in the engineer depot will be furnished for the work proposed on your requisition.

It will be advisable for you to keep a detailed statement of all expenses incurred in the preliminary military reconnaissance, and report the same to the War Department for communication to this Department in order that I may suggest to Congress the necessity of making special provision therefor as an expense incurred in the execution of an international treaty. You will please inform me as speedily as possible the date of your intended probable arrival in El Paso, in order that I may inform the Mexican Government, and it in turn inform General Revueltas.

I am, sir, your obedient servant,

FRED'K T. FRELINGHUYSEN.

To enable me to carry these instructions into effect they were supplemented by the following order from the Secretary of War:

HEADQUARTERS OF THE ARMY,
ADJUTANT GENERAL'S OFFICE,
Washington, June 25, 1883.

Lieut. THOMAS W. SYMONS,
Corps of Engineers (through Chief of Engineers):

SIR: Referring to your communication of the 21st instant, I have respectfully to inform you that to enable you to comply with the instructions of the honorable the Secretary of State, dated June 20, 1883, the Secretary of War directs that you proceed via Willets Point, New York Harbor, to El Paso del Norte, and to such other points in the vicinity of the boundary line between the United States and Mexico as it may be necessary for you to visit in carrying out the instructions above mentioned, and upon the completion thereof you will proceed to Washington, D. C.

I have also to inform you in this connection that the Secretary of War has approved your request that the sum of $750 be furnished you for the payment of necessary expenses incident to the performance of your duties, and that the money will be paid from the appropriation for "Army contingencies"; also, that the necessary instructions as to proper escort, &c., for your protection and aid have been communicated to the commanding generals of the Departments of Arizona and the Missouri.

Very respectfully, your obedient servant,

R. C. DRUM,
Adjutant-General.

I arrived at El Paso on the 2d of July, and on the 3d I met General Revueltas and the officers of the Mexican army who had been appointed to co-operate in the reconnaissance of the boundary line.

I explained to him what had been previously done by officers of our Army, and gave him all the information which had been gathered by them concerning the boundary monuments. General Revueltas informed me that his escort was at Chihuahua, and I told him that I expected mine at Deming.

After a discussion as to the best manner of making the reconnaissance, the following verbal agreement was made:

General Revueltas agrees to send two officers with me to go from Deming to Carrizilillo Springs and examine the line on the parallel 31° 47′ to the southeast and southwest of these springs, and down the meridian boundary line to its intersection with the parallel of 31° 20′. There his troops are to join my escort, and the remainder of the line to the 111th meridian is to be examined together. In the mean time he is to send some officers over the azimuth lines from the 111th meridian to the Colorado and to San Diego, where we are to meet, compare notes, and exchange information.

As soon as I found out what day my escort would be ready I wrote to General Revueltas, informing him of the date and extending the hospitalities of my camp to the officers whom he should designate to accompany me. He replied tha this officer was not ready to start, but would overtake me if possible. He did not overtake me; neither did General Revueltas nor any of his officers meet me on the line as agreed, nor could I hear anything concerning them from the custom-house officials. As far as I am able to ascertain he made no reconnaissance over the 111th meridian to San Diego, and he did not meet me in San Diego, nor communicate with me in any manner.

I write this to show that the reason why the reconnaissance was not made more in concert with the Mexican authorities was because they violated all their agreements.

After departing from El Paso, I saw no more of General Revueltas, and had no correspondence with him.

While at El Paso I examined the Monuments Nos. 1, 2, and 3, west of the Rio Grande, and found them in excellent condition. They are of cut and rubble stone, cemented together, and are about 12 feet high.

On July 12, I started from Deming with the following escort and outfit:

Second Lieut. W. H. Allaire, Twenty-third Infantry, with 20 men (enlisted) of the Twenty-third Infantry; 11 enlisted men of Company B, Fourth Cavalry; 2 Mescalero Apache scouts of Company B, Fourth Cavalry; Frank Bennett, chief of scouts, District of New Mexico; C. A. Mahoney, interpreter and general assistant; C. C. Young, guide and laborer; 8 pack mules of Company B, Fourth Cavalry; 4 six-mule teams.

I had requested from General Mackenzie, the commanding officer District of New Mexico, pack transportation and cavalry escort exclusively, but he insisted upon furnishing me with infantry and wagons, although I protested against them as unsuited to my needs and the country to be traversed. To avoid trouble and delay, and with the hope that they would prove advantageous, I accepted the situation, and started with the wagons, &c., as furnished.

July 12, we left Deming and marched over a well-beaten road to a well lying north of the Tres Hermanos Mountains, and about 20 miles from our starting point.

July 13, marched with pack train and cavalry detachment to head of Lake Palomas via Willow Springs. For a portion of the way there was no road, and the wagons were obliged to make a detour around the mountains and were unable to go further than Willow Springs. They joined at Lake Palomas the following day. Lake Palomas, or, as it was known in the days of the boundary survey, "Ojos de las Adjuntas," is a succession of small lakes or ponds, in all about five or six miles long. It is undoubtedly the waters of the Mimbres River, rising after their underground journey. The water is good, although slightly alkaline, and it is surrounded by a magnificent grazing country, where many thousand head of cattle could find abundant feed.

Monument No. 4, situated on a hill about 18 miles east of the lake, was visited and found in good condition.

Monument No. 5, near the head of the lake, has been partially torn down by some vandal.

From Lake Palomas we went to Carrizilillo Spring along an old wagon road, which does not seem to have been traveled for many years, and in some places is scarcely discernible.

Monument No. 6, a little north of this road, was found in good condition.

The whole country is covered with excellent grass, and Carrizilillo Spring furnishes an abundant supply of good water. We remained here one day and examined Monument No. 7, situated about 5 miles to the south. This was found thrown down and in a bad state of dilapidation.

While at Carrizilillo two teamsters, one from Fort Bliss and one from Fort Cummings, refused to go any further, and their places were filled by soldiers.

On July 17 the infantry and wagons were sent on to Mosquito Springs, and, with the cavalry, I went and examined Monument No. 8 at the end of the boundary on the parallel of 31° 47′, which was found in excellent condition.

We then joined the wagons at Mosquito Springs.

Monument No. 9, near Mosquito Springs, was found partially thrown down.

These springs are on the main road from Deming, Silver City, and other points in New Mexico to the Mexican towns of Janos, Ascencion,

Corralitos, Casas Grandes, &c. It is on the Mexican side of the line and is a rendezvous for the Mexican custom-house guards or "saladores." These saladores also had a rendezvous at Ojo del Perro, which they insisted was in Mexico, and they exhibited great surprise when I convinced them that it was three miles inside of our territory. They had mistaken a pile of stones erected for some other purpose for a boundary monument. They have for years been enforcing the payment of customs duties from every one who came to this point.

None of these officials had seen General Revueltas or any of his party, and had heard nothing concerning them, and under all the circumstances I did not feel justified in waiting for him.

At Mosquito Springs it was again necessary to separate from the wagons and infantry, and they were sent around by Eureka, and down the Animas Valley to Cloverdale Cienaga, where we were to meet.

With the cavalry detachment I found and examined the fine cut stone monument at the corner made by the meridian portion of the boundary and the parallel of 31° 20′, and encamped at Ojo del Perro.

All the mountains in the vicinity of the boundary line so far traversed gave promise of rich mining developments. In the Tres Hermanos Mountains (called Sierra del Tabaco on the boundary map) quite a number of men were at work, some on quite rich claims.

Among the hills surrounding Carrizilillo Spring there was found in 1880 extremely rich free milling silver ore. Assays of 600 to 3,000 ounces were made from float, and for some time there was a rush to this new field. The ore, however, was found only in small pockets distributed among the limestone, and it was difficult to obtain it in any quantity. No sign of a regular vein formation could be found, and the district has been gradually abandoned. It is the general belief that when these hills come to be properly and systematically explored they will be found rich in mineral wealth.

The Monument mining district is situated right on the line and about the corner Monument No. 8, from which it takes its name. The district was organized in 1881, and several well-defined veins of silver milling ore and lead ore have been located. The want of an accurate definition of the boundary line is severely felt here. At present the prospector has no certainty as to whether his claim is in New or Old Mexico.

In the Sierra del Perro there are plentiful indications of rich mineral deposits. All these mining possibilities, and the fact that generally the country is a good grazing region, increase the necessity for a better-marked boundary line.

From Ojo del Perro we marched to San Luis Springs in the southern end of the Animas Valley. This long march led us across the Sierra del Perro, the valley of Las Playas, the Gillespie Hills and the Animas Mountains (called by the boundary survey Sierra de San Luis).

The valley of the Playas is overrun with prairie dogs; the whole distance across, about five or six miles, was literally alive with them.

Careful search was made for Monuments Nos. 11 and 12, on the east side of the Animas Mountains, but we failed to find either of them and were obliged to cross the mountains into the Animas Valley for water.

Monument No. 14, at San Luis Springs, was found in place, but very badly demolished and retaining scarcely any semblance to its original shape.

On July 20, with the two Indian scouts, I searched for Monument No. 13 unsuccessfully. Several piles of rocks were found in the near vicinity of the line, but none possessing any distinctive mark of a boundary Monument. With the Indians I kept on across the Animas Mountains,

and searched for Monuments 11 and 12. No. 11 could not be found. About in the position given for No. 12, a small collection of rocks was found, which appeared to have been brought together by design, but which could hardly be accepted as a boundary monument. In returning across the mountains we experienced a terrific thunder storm, the first of the season.

On the following day, with a portion of the cavalry detachment, I again crossed the Animas Mountains to search for Nos. 11 and 12, but could find nothing more than on the previous day.

This region is full of game; antelope abound on the plains and deer and bear in the mountains. In crossing the latter several large bears were seen, but they soon hid themselves among the rocks and rugged gorges. An Indian killed a mother antelope and captured her two beautiful little kids, which being too young to use for food were turned loose, but it is to be feared only to become the easy prey of prowling wolves or to die of hunger and thirst.

The southern end of this Animas Valley is well supplied with water from a number of fine cienaga springs, and grass of the most luxuriant and nourishing character abounds. The whole valley is very fertile and beautiful, and is bound in time to become of great value. A number of springs exist, and I believe that nearly throughout its whole extent water can easily be obtained by digging. It is, however, no place for emigrants, as like many other good regions in this western country it has fallen victim to the land monopoly schemes of certain unscrupulous capitalists. Men are induced to locate under the pre-emption laws at all desirable places where water can be obtained, money being advanced to them as a loan to enable them to make a residence and complete title. When the title is completed the land is bought from these fraudulent settlers for various sums, varying generally from $800 upwards. As the claims are so taken as to cover all the water, the control is obtained over a vastly greater area than appears upon the record.

This is a matter which seems to deserve the most earnest attention of the authorities. A firm of English capitalists, it is said, are also quietly obtaining control of a vast quantity of the best land on the Middle Gila.

Leaving the San Luis Springs, the pack train marched across the valley to the Cloverdale Cienaga and were once more united with the wagons, after being separated for five days.

Under the guidance of a resident of the valley I kept to the left and examined the old road leading into and through the Guadalupe Cañon to determine as to the practicability of taking the wagons any farther. This road, at one time followed by emigrants, traverses here one of the roughest countries in the world. In getting to the Guadalupe Cañon proper a large number of deep and precipitous headwater ravines and rocky hills have to be crossed. The rotten granite rocks and soil over which the road once ran have been washed out into deep, impassable gullies, and the road, extremely bad at its best, and unused for many years, has fallen into such a state as to be absolutely impracticable for loaded wagons. I saw that it would take very much time and labor to put the road into a passable condition for wagons. I reluctantly came to the conclusion that it would be necessary to send the wagons back under escort of the infantry, and push on ahead with the small cavalry detachment. This would be attended with much risk, but any other course would be attended with great delay and trouble.

July 23 was spent in arranging for the separation.

Monument No. 15, in the western side of the Animas Valley, was

found in good condition. It is simply a pile of rocks without mark of any kind.

July 24 we separated from Lieutenant Allaire and passed by a very rough steep trail into the Guadalupe Cañon, down which we kept until the San Bernardino plains were reached. This cañon is a fearful place, exactly suited to Indian ambushes and warfare; its passage was made as quickly as possible and with the greatest caution, and we all breathed more freely when the open country was reached.

In the cañon we passed the monument marking the extremity of the boundary line between New Mexico and Arizona, a square pile of rocks, with inscriptions, and soon after came to our boundary Monument No. 16, which was found in a dilapidated condition, with the inscription stones displaced and broken. Keeping on, we reached San Bernardino Springs, which are about half way between the Guadalupe and Pedrogosa Mountains.

Monument No. 17 is in the green flat just north of the Springs, and is a pile of rocks about 4 feet high, without any inscription stones.

Monument No. 18, with inscription stones, and about 6 feet high, stands about 200 yards west of No. 17, on a bluff. This has been torn down, and the inscription stones displaced and defaced.

A very fine cattle range exists about the San Bernardino Springs, and there can be little doubt that water can be obtained at moderate depths in this valley.

The following day we found Monument No. 19 (a pile of rocks) in the Pedrogosa Mountains, and kept on and encamped at Blackwater, a cienaga spring similar to that at San Bernardino.

There is a good and traveled wagon-road leading from San Bernardino to Blackwater and on to the west. At Blackwater a main road passes north and south.

From Blackwater we marched to a spring situated to the northeast of the Sierra de San José, and on the following day reached the Rio San Pedro at Hereford, where smelting works for the Bisbee ores have been erected. An excellent road leads from Hereford to Bisbee, along which we traveled for about 16 miles.

Monument No. 20 is on the right bank of the San Pedro, and is of rubble-stone in fair condition.

The small town of Ochoaville is 1½ miles north of the line; Hereford is 5 miles further north, and Charleston about 18 miles north of Hereford. At Charleston are situated the extensive reduction works for the Tombstone ores. There are many roads and a great deal of travel through this upper valley of the San Pedro on account of the important mining towns of Tombstone and Bisbee, and the traffic between the railroad and the high table-lands of northeastern Sonora.

From the San Pedro we struck across the gently-sloping grass-covered plains east of the Huachuca Mountains, and on the 28th of July reached Fort Huachuca.

I learned here that no examination of the line to the west had been made by the Mexicans, and I therefore concluded to go over the entire line myself and made my arrangements accordingly.

The two Apache Indian scouts who had accompanied me so far and done good service were unwilling to go farther to the west into the lands of their enemies, the Yumas and Papagoes, so they were sent back by rail to Fort Selden.

C. C. Young, or Texas Charlie, as he called himself, turned out to be a most despicable fraud, and he was discharged.

Four Yuma Indian scouts were procured from San Carlos, as were also three civilian packers and twelve pack-mules.

Two privates belonging to the Sixth Cavalry and three riding mules for the Indians were procured at Fort Huachuca.

Provisions, water-kegs, &c., were obtained, and every precaution was taken to insure a safe journey across the deserts along the line to the Colorado.

Monuments 21 and 22 were not visited, as Lieutenant Ducat had reported them in place and distinguishable, but dilapidated.

Starting from Fort Huachuca, the party was composed of the following besides myself: C. A. Mahoney; Frank Bennett; eleven men Company B, Fourth Cavalry; two men Sixth Cavalry; four Indian scouts, Yumas; three civilian packers; 18 horses, 29 mules; in all, 23 men and 47 animals.

We left Huachuca August 9, and marched over a fair road to the town of La Noria, situated on the boundary line in the San Rafael Valley, one of the headwater valleys of the Santa Cruz. This was started as a mining and milling town, and at one time, when the mines in the Patagonia Mountains were being worked, was quite prosperous. But the mines giving out left it stranded like so many other similar places in the West, and now the people who remain gain a precarious living by smuggling and trading with the neighboring ranchers, and have hopes of another mining boom.

This San Rafael Valley is very lovely, being covered with a luxuriant growth of rich green grass, with plenty of water, and scattered here and there among the rolling hills and on the plains are many handsome oak and walnut trees standing alone and in picturesque clumps. Great numbers of clean and fat cattle gave animation to the scene, and with a background of timbered mountains the whole formed an extremely pleasant picture of pastoral life.

Monument No. 23 in this valley lies about one mile east of La Noria, and was found, like most of the others, partially demolished and with its inscription stones gone.

By a fair trail we crossed the Patagonia Mountains by the San Antonio pass, and made a great effort to find Monument No. 24 in these mountains, but were unsuccessful. The mountains are heavily timbered and very rough.

We reached the Santa Cruz and encamped just below the boundary at Buena Vista, the homestead and headquarters of Señor Martinez, who is the leading and wealthiest citizen in this part of the country, and is largely engaged in ranching and cattle-raising.

The Santa Cruz was quite large at this time, and is by far the most beautiful stream and has the most beautiful valley in the Southwest. The clear running water is fringed with a noble growth of cottonwoods and shrubbery, and the green grassy valley and surrounding hills and terraces are covered with scattering oak and walnut trees and groves. It was very refreshing after the dry and treeless regions which we had traversed, and it often recurred to us in the desert marches made subsequently.

I left the pack-train here one day and went back with several men into the Patagonia Mountains and endeavored to find Monument No. 24. After a very hard ride through an extremely rough country, we at last found a small stone monument on the eastern slope of the mountains, which we supposed to be the one sought for. Soon, however, other similar monuments were found in the vicinity, and we saw that

they were mining monuments. We were obliged to give up the search and return to camp.

These mountains have been crossed many times by prospectors and hunters, and, as far as I could learn, the monument has never been seen by any of them.

Monument No. 25, just north of Buena Vista, was found in a sadly demolished condition, with all the inscription stones gone or broken.

Our next move was to the town of Nogales, situated at the point where the Sonora Railroad crosses the boundary.

What was once a fine monument, No. 26, is right in the town, and is is now a rough heap of stones from which all the inscription stones, as well as a large portion of the original rocks composing it, have been removed.

Nogales is quite a flourishing little town, and the American and Mexican custom-houses are there. It has also a small garrison of Mexican troops. These are not the regular soldiers of Mexico, but men specially enlisted for a term of five months, for service near the border, and who are paid $25 per month. It has been found that the regular soldiers of Mexico, who are nearly all conscripted, when brought near the boundary have an unquenchable desire to sever their bonds of military servitude, and invariably decamp across the line whenever an opportunity occurs.

Lieutenant Ducat had searched several days for the very important corner Monument, No. 27, at the intersection of the 111th meridian and the parallel of 31° 20′, where the azimuth line to the Colorado commences, and was unable to find it. Knowing the difficulty of finding it I made efforts to meet with somebody who had seen it or could tell me where it was. I could only find one man who laid claim to having seen it, and all the information I received from him turned out in the end to be worse than valueless, as it misled rather than guided. Three days of the most arduous labor were spent in searching for this monument, over one of the roughest and most cut-up mountainous countries that can be imagined. It is impossible to travel in the deep and rocky cañons, and the hills are very steep and covered with live oak, manzanita, and juniper bushes so thick that it is difficult to penetrate them. On the third day of the search we were gladdened by hearing the shots that told that the monument was found. It was originally a dry stone monument built in the form of a four-sided pyramid, on the side of a steep hill. When discovered by us it was found to have toppled down the hill.

On a hill top about 600 yards away was found Monument No. XIX, the first of the azimuth line monuments. This was simply a small pile of stones about 2 feet high.

Lieut. A. C. Ducat, Third Cavalry, in February and March of this year, examined and reported on the boundary monuments along this azimuth line as far west as the Sonoyta Valley, about half way. At that season of the year he was unable to go over the remainder of the line, as no water could be had. I did not deem it necessary to re examine these monuments, and so when I left Nogales it was with the intention of reaching the Sonoyta Valley with as little fatigue and hardship to animals and men as possible, and at the same time to gain a good knowledge of the country along the boundary line which would be useful in subsequent operations.

We left Nogales on the morning of August 16, and took the trail for Planches de Plata. After four hours of rough traveling we reached *this* latter place, which is a small Mexican mining settlement situated

in a deep and rugged cañon. The silver ore is brought from the mines near by on donkeys, ground in arrastras, and reduced in a very crude manner with quicksilver. These poor miners barely make a living, and their ashy complexions give evidence of the unhealthiness of their occupations.

There being no feed for animals at Planchees de Plata we kept on through heavy cañons and over steep summits to Promontorio, another small mining settlement similar in character to the one we had left, but still less prosperous. Here we camped and the next day kept on to the west, and stopped at a spring in a small branch cañon of the main draw of the Altar River, which at this point flows no water.

The last two days we had been traveling among the cañons and head-water streams of the Rio del Altar. Although very rough and hard to traverse, the country is very picturesque and full of game. Several antelopes and deer were killed. One antelope, startled by our outlying Indian scouts, came at a tremendous pace down a long sloping hill right into the midst of the pack-train, which had been hidden from its view. Two greyhounds with the party immediately gave chase, and after a very exciting run at last succeeded in bringing it down.

Our next halting place was Sasabe, which is on the main road from Altar to Tucson, and about 2 miles south of the boundary. It is the home station of an immense cattle ranch, and has a store and custom-house. The house is strongly built of adobe in the form of a square, with a court in the center. At one corner is a tall circular tower. The whole is loop-holed and intended for defense against the Apaches, who used to raid through the country.

Before reaching Sasabe we were met by two soldiers, who regarded us with suspicion, and at first insisted on examining all our packs, and upon this being refused they accompanied us as captors into Sasabe. Here we were treated with great kindness by Señor Linero, the administrador.

The customs officials were very happy, as they had just captured a band of smugglers with a large amount of plunder. The duties on imports into Mexico are so high that there is a great temptation to evade them. The duties are generally equal to and oftentimes more than the retail price of the same articles on our side. For instance, ordinary cotton overalls which are sold on our side at 75 cents and $1, are charged a duty of $1.16⅔ per pair. Sometimes the smugglers go in large bands of forty or fifty men, with seventy or eighty pack animals, and fight their way through. I was informed that captured smugglers were often sentenced to serve in the army for the remainder of their lives. This may account in some degree for the reluctance with which the regular troops of Mexico are brought near the border.

We were now to bid adieu to all pleasant features in traveling, and plunge into the unattractive deserts. Except in the rainy season, the deserts between here and the Colorado are impassable. Luckily for us, there had been quite heavy and general rains and we could count on finding water in certain places, known to our local guides. Five miles beyond Sasabe is the Papago village and well of Pozo Verde; here and in the Sonoyta Valley are the only permanent waters between Sasabe and the Colorado.

As everything in this country depends upon and is subservient to the question of water, it may be well to note here the different Mexican designations of watering-places and their significations.

Ojo is a *spring; pozo* and *noria* signify *well; lago* or *laguna, lake,* generally applied to permanent water; *tinaja* is a naturally-formed

rock tank in the mountains where rain-water collects; *charco* is a mud tank, a natural or artificial excavation or depression in the soil of such a nature as to hold the rain-water that collects in it. *Presa* is a water-course (usually dry) dammed up to make a reservoir for the water which flows through it during a storm. The Papagoes and Yaquis make these charcos and presas and live at them during the rainy season, raising corn, &c., and when the dry season comes return to their homes by some permanent water. These rainy-season villages are called "temporals."

Leaving Sasabe, we passed by Pozo Verde, and kept on nearly due west and reached a sm all and uncertain spring called Gomerito. In the afternoon of this day we had a very heavy storm of rain. The animals could not face it, but turned their backs to it and refused to move; the thunder and lightning was terrific, and in less than half an hour the plain was flooded with from 3 to 12 inches of water. The rapidity with which this water came down was only equaled by that with which it disappeared into the thirsty earth.

From Gomerito we crossed over through the Sierra del Cobota to the Cobota copper mines, and thence our route lay to the southwest to a presa and temporal village in the Nariz plains. A few miles beyond this we came to the old road leading from Altar to the Sonoyta Valley, and on this we kept until we reached the southern end of the Nariz Mountains, where is a charso and another temporal village. We were enforced to encamp here, although there was very little feed and the water was very bad.

The next day we marched to Sonoyta, passing by the way two temporals. It was a great pleasure to see again green grass and clear running water, and we laid over a day to allow our tired and hungry animals to recruit. This Sonoyta Valley is the only green and pleasant place within a vast area of desert. There are quite a large number of people here, who appear happy and well to do.

We left Sonoyta and kept on down the valley, passing by Santo Domingo and Quito baquito, and camped at Agua Dulce, a place where water can generally be obtained by digging in the bed of the Sonoyta Creek.

The Monuments VII and VIII, which formerly stood at Quito baquito, have been entirely destroyed, not a vestige of them remaining. It was told to me that they had been destroyed by parties interested in smuggling operations, so that the location of certain houses could not be accurately determined.

The heat all along has been very great, but it has now become so very intense that we were obliged to do most of our subsequent traveling at night.

About midnight, at Agua Dulce, a portion of our animals stampeded, but were recovered by our swift-footed Indians. At 1 o'clock in the morning we were packed up and moved out. It was so hot during the coolest hours of the night that our animals, as well as ourselves, were dripping with perspiration from every pore. After a march of twenty-five horrible miles we came to a presa, made years ago, but which still holds, and furnished us with a supply of muddy water. At Agua Dulce there was a very scant supply of innutritious salt grass, and at the presa there was none. The heat was so terrible during the day that no rest could be obtained.

Everybody was called from their restless slumbers at midnight, and we started for the Tinaja del Tule, a water-hole in the Sierra del Tule. Across a miserable desert, as flat and level as a floor, without a particle of vegetation for miles, our route led us to the eastern slope of the

Sierra and the vicinity of Monument No. V, which we reached at daybreak. Here I remained with the four Indians to search for the monument, sending the pack train and escort on to the tinaja, about 15 miles farther. After a most exhausting and careful search for this monument, we were obliged to give it up. No trace of it could be found.

The mountains are of the roughest, most forbidding description; their cragged summits, to which only the most skilled and experienced mountaineer can attain, are covered with huge bowlders and masses of rotten granite rocks, which look at a distance like monuments and are in consequence very deceptive. A monument built of these rotten granite rocks on the knife-edge summit of these mountains would be very apt to be destroyed by natural causes, and this is probably what has befallen this monument, as well as No. IV, further on.

At the tinaja we found but a small quantity of water, only enough to last us about one day, and so I was compelled to give up any further search for No. V. There was no feed for the animals, and the heat both day and night continued frightful.

About these watering-places are numbers of graves, marked with stones laid in the form of crosses, of people who have come expecting to find water, but have been disappointed, and, unable to go on or to retrace their steps, have perished by that most frightful of all deaths, by thirst. Only a short time before a family consisting of man, wife, and three children came to the Tinaja del Tule. The water was all dried up. They were unable to go farther, and the whole family perished miserably and were found by some travelers the next rainy season.

We packed up at nightfall and started for the Tinajas Altas, having completely exhausted the water in the Tinaja del Tule. We were now to experience a night's travel of most singular description. Soon after starting clouds began to form thick and fast, and gusts of wind and a peculiar feeling in the air gave us warning that a tempest was approaching. For an hour we had a blinding sand-storm with accompaniments of thunder and lightning. As the threatening deluge drew nearer and nearer the lightning and thunder became more vivid and appalling. At last the rain came and for two hours a storm raged with a fury unknown anywhere else, except in these deserts. The rain came down in torrents with great force, and the lightning was so near, so vivid, and so constant that it seemed impossible for us all to escape being struck, especially as we were the most prominent objects on the plains. The thunder was continually crashing close about us, and every thing combined so frightened our pack-mules that they commenced to stampede, and we were obliged to ride after them, gather them together, and herd them until the fury of the storm was passed. The night itself was as dark as pitch and everything had to be done by the glare of the lightning. At last the main storm passed by and left us in the plain where every dry wash was converted into a torrent. The lightning continued, however, and by its almost incessant glare we traveled the remainder of the night until we reached the Tinajas Altas.

Here we passed a day making ineffectual search for Monument No. 4. Nobody, as far as I could learn, had ever seen these monuments since they were erected, and it is scarcely probable that any ever put up on this part of the line ever would be seen. The whole country lying along the boundary-line from Quito baquito to the Colorado is such a complete and absolutely helpless desert that no complete and definite line of demarkation with monuments placed close together is needed.

Leaving the Tinajas Altas we made another night's march to the Gila,

reaching it just below the railroad station of Adonde. There was no grass at the Tinajas Altas and very little on the Gila. In the morning we had a very refreshing bath in the Gila, which here is a rapid stream, in places 6 and 8 feet deep. In the afternoon, just before starting, I went to take another plunge and found the water so very hot that I was unable to go in. This illustrates the fervent heat of the day.

Another night march of 30 miles and we reached the Colorado River at the town of Yuma, celebrated as being the hottest place in America. The whole party, men and animals, were almost completely exhausted from the effects of night travel, and the fact that no compensating rest and sleep could be obtained during the day time. During the period when we were crossing these Sonora deserts, the temperature in the coolest, shadiest place in Yuma had been during the day from ten to twenty degrees above blood heat.

With the exception of a worn-out horse killed at the Tinaja del Tule, everything came through all right, and a few days of rest at Yuma with plenty of feed put all in good condition again.

A week passed in Yuma, while at its hottest, is an experience ever to be remembered. Before the advent of the railroad, Yuma was the great shipping point for all the vast country between the Colorado and the Rio Grande, both in the United States and Mexico, and its streets were crowded day and night with innumerable freight wagons and stages bound to or from the interior, or the seaport of San Diego. But its glories are now departed, its corrals and diverging wagon roads are deserted, and it is simply a way station on the railroad.

At Yuma I learned that the old wells, which had been dug in the Colorado desert, in the days of stage travel across it, had all or nearly all become filled up or polluted to such an extent as to be unfit for use, and that a journey across the desert would be attended with very great risk. So much did some of the residents of the place dilate upon the horrors of the trip to the men accompanying me, that some of them, as I afterwards learned, came very near deserting to avoid the journey.

I was fortunate enough to find a Mexican who had a short time before crossed the desert with a six-horse team, carrying water with him, and going by way of the New River, or Hualpai Smith, route. I engaged him to go part way across the desert with his team and carry water. From his accounts it was possible that we might cross safely without assistance, but I deemed it best to take as few chances as possible.

September 8 we left Yuma with the party, augmented by a six-horse team, wagon, and driver, and an assistant driver mounted on a burro and armed with a blacksnake whip. Judge Hualpai Smith, a celebrated character and old resident, very familiar with the desert, was also with us.

We went about 6 miles down the Colorado and crossed it at Hanlon's Ferry. It took about six hours to make the necessary three trips across the river with the ferry-boat, and all the time the sun was beating down on us in his most ardent manner, and the moist air of the river-bottom was stirred by no breeze. The heat experienced throughout the crossing eclipsed anything that we had endured on the reconnaissance.

The method of crossing was to pay out a rope to a lot of men in the water, who hauled the boat up along the bank for a long distance; then everybody came aboard, and it was forced diagonally across and down by current and oars to the other bank, when it was hauled up to the *landing* as before.

We marched down the river to the Algodones, a cattle-ranch, about 4 miles below the ferry.

I visited the site of Monument No. VI, of the line between Upper and Lower California, situated upon the right bank of the Colorado, on a bluff of gravel and bowlders. Nothing remained of this but a few stones, fragments of mortar, and scraps of iron.

Our next camp was in a slough of the Colorado, at a small pond called the Round Lagoon. Many Indians live in the vicinity and raise corn, melons, &c. Our Indian scouts took great delight at night in singing Apache war-songs, to the bewilderment and consternation of the resident Yumas.

We kept on to the southwest, skirting the sand-hills, and reaching New River Slough, down which we kept until we reached an Indian rancheria called Capitan Juan's.

So far we had been traveling through the river-bottom, and forcing our way through the most luxuriant vegetation, consisting principally of wild hemp, arrow-wood, grease-wood, pig-weed, and cottonwood, willow, and mesquite trees. The bottom is generally overflowed every year, and the ground is also kept moist by seepage from the river and ponds, so that the vegetation is of the thickest and most abundant character.

After leaving Capitan Juan's we went across a bend of New River and struck it at another point, where is situated the old New River station and well.

New River has a place upon the maps, and used to exist, but there has been no river there for many years. It was formed by a combination of high-flood waters in the Colorado and very high tides in the Gulf of California, forcing the water out into the Colorado desert, which, it must be borne in mind, is a hundred feet and more below the level of the river. This continued action wore out a channel, to which the name New River was given. In the ante-railroad days, when stages crossed the desert, New River used to flow such volumes of water at times that a ferry-boat was a necessity where the road crossed it at the New River station. Somehow the combinations no longer exist which sent the water flowing out into the desert, and New River is no more. Some gentle overflows and underground passages allow water to get through and collect in pools in the old river-bed as far as Capitan Juan's and a few miles beyond. The head of New River is overgrown with vegetation and has filled up a great deal, so that it is not probable that it will ever exist again unless it is produced by artificial means.

New River well is about 60 feet deep and yielded us a scanty supply of horrible black, thick, stinking water which our poor animals reluctantly drank. We remained here one day, our animals finding plenty of sweet nourishing mesquite beans to eat.

I visited the two boundary monuments Nos. IV and V, which stand in perfect condition about five miles north of our camp at the well. They are of iron 6 feet high, constructed of three-eighth inch cast plates bolted together, and are about a mile and a half apart.

Up to this point the passage of the desert had been comparatively easy. There was now a distance of 60 miles, much of it through the heavy drift sands and across the main coast range of mountains, to be passed before an assured supply of water could be obtained. Indian Wells, 16 miles on, was dry and hopeless; at Coyote Holes, 22 miles farther, water might possibly be had by digging; at Mountain Springs, 12 miles farther, our Mexican reported only enough water for men, and not enough for animals, and that it was only after crossing the mountains

to Larkin's or Jocumba ranch that we would be sure to find an abundance of water.

At nightfall Corporal Conway and three men, with a guide, started to ride through to Coyote Holes, 38 miles away, to dig and find water there if possible. At the same time the wagon, loaded with water, started, to go as far as possible that night.

At midnight all hands were called, and we were soon packed up and moving by the light of the moon across the desert. A little after daylight, and a few miles beyond the old deserted station of Indian Wells, we came up with the wagon, and our thirsty animals soon drank up its load. On we kept over level flats, sandy wastes and ridges, hills of glassy bowlders, and deep-cut ravines and washes of past ages. About midday we reached Coyote Holes, and found to our joy that water had been struck by the corporal and his party, salty, sulphurous, and bad smelling, it is true, but still most welcome. There was not a spear of grass, but we unpacked and rested here until 5 o'clock in the afternoon, when we fed our last kernel of grain, and started on again.

Our way led us apparently right into the high, black mountains; reaching them we turned, and by the light of the full moon marched up a most wonderful cañon with high vertical granite walls and a floor of white drift sand blown over from the desert. At Mountain Spring we found more water than we had been led to believe could be obtained. These mountains look like immense piles of gigantic bowlders, and are horribly bleak and apparently inaccessible.

From Mountain Spring the regular ascent of the main mountain range commenced; and for hours we slowly moved up by a fine winding road. After crossing several divides we at last descended into a mountain valley where the bellowing and stampeding of the startled cattle told us that our destination was near. About 3 o'clock in the morning we came to the ranch houses and found an abundant supply of the most delicious water. Putting our animals into a corral we were soon asleep, having been on the move almost constantly for about twenty-seven hours. The wagon was sent back from Coyote Holes.

Our route across the desert took us considerably south of the line. This detour was made to avoid the heavy sand along the line from New River well to the Colorado, and to procure water and grass in the New River slough. If the line be resurveyed and marked it will be necessary to send out parties to dig out and clean these wells along the line. These were known as Cook's Wells, Seven Wells, Gardner's Wells, Alamo Wells, New River Wells, Indian Wells, and Coyote Holes.

In the morning we found that only a small amount of feed could be procured at Larkin's ranch, and so, contrary to my intentions, we were obliged to pack up and push on another 20 miles to Campo.

Campo is a small settlement in a pretty valley at the headwaters of the Tecate River (now dry). There are several ranches and a store, post-office, blacksmith and wagon shop, grist-mill, &c., all owned by the Gaskell Brothers. They have also a telephone line to San Diego, using the old Government military telegraph line for the purpose. A stage, making three trips a week, runs to San Diego. Many beautiful and fertile valleys are in the vicinity.

The boundary line is said to be about half a mile south of the Gaskell store, &c., but the Mexican authorities have several times tried to make the firm pay heavy taxes, insisting that they were in Mexico.

We remained at Campo one day for a much-needed rest, and then kept on over a very good mountain road and through an interesting country to Jamul Station and camped. On the way we passed several

bee ranches, each with a great number of hives. The proprietor of one, named Scheckler, very kindly gave the party about 30 pounds of the most delicious, clear, white honey.

Our next day's march took us by a number of incipient orange groves, and to the site of Monument No. III, situated on the hills between the Otay and the Tia Juana. Of this nothing remains but some traces of the base and some small scraps of iron. We crossed over to the Tia Juana and kept down it to the town of Tia Juana, situated on the boundary line. Here the remains of Monument No. II were found; only the base of it remains.

The next day we were at the fine marble monument No. I, situated on a bluff overlooking the Pacific Ocean, the initial point of the boundary, and our work was done and our mission accomplished. This monument has been defaced by relic hunters, and I would recommend that for its protection a strong and high wrought-iron fence be placed about it.

A few hours more of pleasant riding over a very fine natural road along its beautiful bay, and we were in San Diego.

Here all civilian employés were discharged, and the remainder of the party, men, animals, and stores, were turned over to Captain Whitney, commandant of San Diego Barracks, for shipment by rail to their respective posts.

To the men who accompanied me through on this reconnaissance, I am under great obligations. They all endured the hardships and severe labors of the trip willingly and cheerfully. I give herewith the names of the men who accompanied me all the way through: Frank Bennett, chief of scouts, District New Mexico; Cornelius A. Mahoney, El Paso, citizen; Sergeant Stoehr, Corporal Conway, and Privates LeClare, Cranion, Sanders, Reppert, Williams, Lindorff, Connelly, and Baldwin, of Company B, Fourth Cavalry.

From Deming to Fort Huachuca I was also accompanied by C. C. Young, citizen, and Na-yo-ka and Che-ve-ta, Apache (Mescalero) Indian scouts.

From Fort Huachuca to San Diego I was accompanied by Privates McCarty and Kearney, Sixth Cavalry, and Rowdy Tom and Pete, Yuma Indian scouts, Johnny, Mohave Indian scout, and three civilian packers, Huston, Roher, and Salazar.

The following table gives the distances ridden during the reconnaissance, going from camp to camp, and in searching for monuments:

Date.	From—	To—	Distance.	Remarks.
			Miles.	
July 12	Deming	Hale's Well	22	Good road.
13	Hale's Wells	Lake Palomas	26	Part of way no road.
14	Lake Palomas	Monuments 5 and 4 and return.	40	No road on trail.
15	....do	Carrizlillo Springs	36	Poor road.
16	Carrizlillo Springs	Monument 7 and return.	15	Good road; climbed mountain.
17	....do	Mosquito Springs	40	Visited Monument 8 at corner; left wagons at Mosquito Springs.
18	Mosquito Springs	Ojo del Perro	25	Visited monument 10 at corner.
19	Ojo del Perro	San Luis Springs	41	
20	San Luis Springs	....do	24	Across Animas Mountains looking for monuments 11, 12, and 13.
21	....do	....do	25	Across Animas Mountains looking for monuments 11 and 12.
22	....do	Cloverdale Cienaja	24	No road; joined wagons.
23				In camp.

Date.	From—	To—	Distance.	Remarks.
			Miles.	
July 24	Cloverdale	San Bernardino	36	Old road and trail.
25	San Bernardino	Blackwater	26	Fair road.
26	Blackwater	Gold Run Spring	25	Road and trail.
27	Gold Run Spring	Hereford	22	Trail and road, San Pedro River.
28	Hereford	Fort Huachuca	21	Across country.
29–31				
Aug. 1–8				At Fort Huachuca.
9	Fort Huachuca	La Noria	35	Fair road.
10	La Noria	Buena Vista	21	Trail.
11	Buena Vista	do	40	Searching for monument 24.
12	do	Nogales	8	Road and trail.
13	Nogales	do	50	Searching for monument 27.
14	do	do	40	
15	do	do	28	
16	do	Promontorio	21	Rough trail,
17	Promontorio	Rancho Gomeral	16	Across very rough country.
18	Rancho Gomeral	Sasabe	21	Trail.
19				In camp.
20	Sasabe	Gomerito	31	Trail.
21	Gomerioto	Nariz Charco	34	Trail and road.
22	Nariz Charco	Sonoyta	30	Road.
23	Sonoyta	do	16	To San Domingo and return.
24	do	Agua Dulce	18	Agua Dulce.
25	Agua Dulce	Presa	25	Old road.
26	Presa	Tinaja del Tule	38	Old road and in mountains.
27–28	Tinaja del Tule	Tinajas Altas	15	Over desert, old road.
28	Tinajas Altas	do	20	Searching for Monument IV.
28–29	do	Gila River	30	Old road.
29–30	Gila River	Yuma	32	Do.
31				
Sept. 1–7				At Yuma.
8	Yuma	Algodones	10	Crossed Colorado.
9	Algodones	Round Lagoon	7	Colorado Bottom.
10	Round Lagoon	Capitan Juan's	20	Old road.
11	Capitan Juan's	New River Well	26	Do.
12	New River Well	do	15	Visiting Monuments IV and V.
13, 14	do	Larkin's Ranch	60	Old road.
14	Lorkin's ranch	Campo	21	Road.
15				In camp.
16	Campo	Jamul	23	Road.
17	Jamul	Tia Juana	30	Monuments III and II visited.
18	Tia Juana	San Diego	23	Monument I visited.

In all, a distance of 1,252 miles, traveled in 47 working days; an average of 26⅔ miles per day. The total time from Deming to San Diego was 68 days.

I attach hereto a general map of the boundary line cut from the engineer map of the Western States and Territories.

I have the honor to be, very respectfully, your obedient servant,

THOMAS W. SYMONS,

First Lieutenant, Corps of Engineers.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 97.

IN THE SENATE OF THE UNITED STATES.

MAY 27, 1884.—Ordered to be printed.

Mr. VOORHEES submitted the following

RESOLUTION:

Resolved, That the Secretary of the Senate be, and he is hereby, authorized and instructed to pay the officers and employés of the Senate their respective salaries for the month of May, 1884, on the 29th day of said month.

O

: CONGRESS, } SENATE. { MIS. DOC.
t Session. } { No. 98.

IN THE SENATE OF THE UNITED STATES.

29, 1884.—Referred to the Committee on Public Lands and ordered to be printed.

Mr. VAN WYCK submitted the following

RESOLUTION:

solved, That the Secretary of the Interior and the Attorney-General ne United States be, and they hereby are directed, respectively, to such action as each may deem necessary to prevent any sale by the ntic and Gulf West India Transit Company, or by any company or on claiming under them, of the lands described in the act approved 17, 1856, and entitled "An act granting public lands in alternate ons to the States of Florida and Alabama, to aid in the construc- of certain railroads in said States," so far as the same lie within the of said railroads between Waldo and Tampa Bay, Florida, until gress shall have authorized the same.

O

48TH CONGRESS, 1st Session. } SENATE. { MIS. DOC. No. 99.

IN THE SENATE OF THE UNITED STATES.

JUNE 2, 1884.—Ordered to be printed.

Mr. MORGAN submitted the following

RESOLUTION:

Resolved, That the Commissioners of the District of Columbia be directed to report to the Senate the aggregate amount collected from taxation for each of the fiscal years from 1875 to 1884 inclusive, in each of the four quarters of the city of Washington, in Georgetown, and in the county of Washington outside of said cities. Also, the aggregate amount expended in each of said six divisions for each of said ten years for street improvements of all kinds, including the replacement of wood, stone, and Macadam pavements, new pavements, laying sidewalks, regulating, grading, and filling up streets, repairs to concrete pavements and Macadam roadways, parking, for permit work, and for repairs to streets, avenues, alleys, county roads, suburban streets, &c.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 100.

IN THE SENATE OF THE UNITED STATES.

JUNE, 1884.—Ordered to be printed.

Mr. MORGAN submitted the following

RESOLUTION:

Resolved, That the Commissioners of the District of Columbia be required to report to the Senate a statement of the receipts and disbursements on account of the water department, or water fund, for each year from 1875 to 1884, inclusive, stating the amount received from each separate source, and when, where, and for what purpose the money has been expended.

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48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 101.

IN THE SENATE OF THE UNITED STATES.

JUNE 6, 1884.—Referred to the Committee on Rules and ordered to be printed.

Mr. HARRIS submitted the following

RESOLUTION:

Resolved, That the thirty-third rule of the Senate be so amended as to insert after the words "Admiral of the Navy" the words *The Commissioners of the District of Columbia.*

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48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 102.

IN THE SENATE OF THE UNITED STATES.

JUNE 9, 1884.—Ordered to be printed.

Mr. BECK submitted the following

RESOLUTION:

Resolved, That the Committee on the Judiciary be instructed to report back to the Senate Senate bill No. 3, being a bill for the removal of all political disabilities imposed by the fourteenth amendment to the Constitution of the United States, referred to said committee December 4, 1883, with such recommendations as the committee may see fit to make.

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 103.

LETTER

OF

W. P. CANADAY, SERGEANT-AT-ARMS, UNITED STATES SENATE,

TRANSMITTING

Report of Chief Engineer T. A. Jones, regarding the heating and ventilation of the Senate Chamber, with certain recommendations of the Architect of the Capitol relative thereto.

JUNE 9, 1884.—Referred to the Committee on Public Buildings and Grounds and ordered to be printed.

SERGEANT-AT-ARMS, UNITED STATES SENATE,
Washington, June 9, 1884.

DEAR SIR: The inclosed report of Mr. T. A. Jones, chief engineer heating department, and letter from E. Clark, esq., Architect United States Capitol, in relation to said report, are herewith submitted to you.

Very respectfully,

W. P. CANADAY,
Sergeant-at-Arms.

Hon. GEORGE F. EDMUNDS,
President pro tempore United States Senate.

Hon. W. P. CANADAY,
Sergeant-at-Arms United States Senate:

SIR: I beg leave to present the following report of repairs that are necessary to the machinery and appliances of the heating and ventilating department of the Senate, and also to make such suggestions and recommendations in regard to improved facilities as experience has demonstrated to be necessary to the attainment of the best results in the work of the department and, respectfully suggest that they be referred to the Architect for his advice, and, as far as they may be in accordance with his judgment, for his approval, or that they be otherwise referred, as may seem best to you.

THE BOILERS.

They are neither efficient nor economical, and give no promise of being durable; but if they cannot be replaced by new ones during this year the following repairs are necessary for their continued service during the next winter, viz:

1st. The drop flues of boilers Nos. 2 and 3 need to be changed to correspond to those of Nos. 4 and 5, as arranged last season.

2d. The furnace doors and chutes require renewal in some form, as they are burned out, and I recommend that, instead of their replacement by similar cast-iron forms, there be substituted a wrought, iron water circulating chute, for which I have prepared plans.

This arrangement will cost a little more than the cast-iron form, but when furnished they will somewhat increase the service of the boilers, and will obviate the necessity of further repairs in that direction, as they will last as long as the boilers.

3d. One set of grate bars (Tupper pattern preferred) is required for each of the five boilers.

There will be other incidental repairs needed, which cannot be specified until the boilers are laid up and examined.

THE STEAM COILS.

There are four of these that need repairs; two situated in the folding-room, one of which is utterly useless, but can be replaced by the elevated radiator in the air-shaft leading to the gallery, as it is of no use where it now is; one located in the kitchen, and one in No. 1 engine-room. There will be some general repairs to others required, such as renewing valves, &c.

THE ENGINES.

The four engines will require no extensive repairs, as far as is now apparent. Two hundred dollars will probably cover all cost of material and labor beyond what we can do ourselves for the engines.

THE PUMPS.

There are five pumps. One is an Earl pump, which is held as a reserve only; being nearly worn out, it is useless. It is kept in the best order possible, considering its condition, for use in supplying the boilers and building in case of the failure of either of those in general use for that purpose.

The pump that supplies the building with water requires new stuffing boxes for both steam and water ends. The two Davison pumps require new valves and other material, in all not exceeding $100.

THE ELEVATOR.

As far as can be observed at present, it will require very little beyond the work which we can do ourselves.

OVER THE CEILING.

The lower blinds under the glass portion of the roof for regulating the admission of sunlight to the Chamber have been nearly useless for years. They ought to be rearranged so that they can be manipulated easily, noiselessly, and with precision.

The lighting apparatus requires one hundred new burners (the Gardner pattern preferred) to take the place of an equal number of Bogart burners that have been in use for about twelve years, and are now worn out. Beyond these a small expenditure for material only will be required, the work being done in the Department.

The above repairs are necessary in order to maintain the present

machinery and appliances in serviceable condition. To add somewhat to their efficiency and to convenience in operating, I respectfully recommend the following, viz:

1st. That the vacuum pump and feed-water heater be replaced by a siphon condenser, similar to the one in use in the south wing. Such change will secure greater economy in the use of steam, greater certainty in operating, and much greater efficiency and power.

2d. That a pump of greater capacity be secured for the elevator; the one now in use is too small for the work it has to do. It could be replaced by one a size larger without any material change of pipes, and the one now in use would do good service in boiler-room in place of the Earl pump above referred to, the additional expenditure for material being for about 175 feet of supply pipe only.

In connection with the elevator I recommend also that the closed wood and glass fronts at the three landings be replaced by strong iron wire-screen fronts and doors, which will obviate the very objectionable currents of air now caused by the motion of the car.

3d. That a bulkhead be placed across the passageway between No. 1 and No. 2 engine-rooms, upon which shall be placed indicators showing the revolutions of the exhaust engine, the state of the water supply of the tanks and boilers, and such others as are necessary for precision and convenience in working. It is rendered important by the fact that the exhaust engine and the boiler-room are widely separated from the other engines, the location of which must necessarily be the point from which the operation of the machinery in all its details must be observed and directed.

RECOMMENDATIONS FOR ENLARGED AREAS OF TUNNEL, PASSAGEWAYS, EXITS, ETC., NECESSARY FOR THE ATTAINMENT OF BETTER RESULTS.

After all has been provided that is above recommended, we are still far short of satisfactory ventilation of the Senate Chamber.

Such satisfactory ventilation consists in an abundant supply of pure air of an agreeable temperature and humidity, without perceptible currents, to every part of the main floor and galleries.

The practical tests of abundance of supply, or sufficiency of volume, is the odor and the effect of long continued breathing of the air upon delicate organs. It should be such that persons of the most sensitive respiratory organs or nervous constitutions should experience no inconvenience from presence in the Chamber continued through the entire twenty-four hours if necessary, or such that a person of trained sensitiveness and observation should not be able to detect the odor peculiar to imperfect ventilation, and in the latter condition the former is practically secured.

Such a ventilation is impossible with the existing areas and arrangement of ducts, passageways, and exit spaces for the conveyance and distribution of the air. The necessity for increased areas and suggestions for their arrangement have been presented as fully as is convenient, and in detail, in communications referred to the Committee on Public Buildings and Grounds, copies of which I append and to which I respectfully refer as a part of this report. I respectfully urge that the increased facilities herein recommended be provided, as absolutely necessary for the proper ventilation of the United States Senate.

I would especially recommend (if the Architect sees no special objections) that ventilating louvers of similar construction to those on the

south wing be placed on the roof, the result of which will be a constant circulation of air through the Chamber, and out at the roof by night as well as by day, and the force of the exhaust fans can then be brought to bear upon the corridors and the kitchen.

This work will probably involve an outlay of $6,000, but will be very advantageous, as the Chamber would be freed from obnoxious odors, which are now perceptible in the earlier part of the day.

Very respectfully,

T. A. JONES,
Chief Engineer United States Senate.

MAY, 1884.

Hon. WM. P. CANADAY,
Sergeant-at-Arms, United States Senate:

SIR: I beg leave to present the following additional memoranda with reference to the appliances for heating and ventilating the north wing of the Capitol, especially of the Senate Chamber.

The two papers heretofore presented were prepared, one in July and the other in August last, more particularly for guidance in the work of the recess of Congress, that what little could be done without special means or authority, might be intelligently directed towards securing the best results possible under such circumstances.

These papers were subsequently submitted to the Senate and referred to the Committee on Public Buildings and Grounds.

They are incomplete in that they do not discuss or even refer to other parts of the subject, which are of equal importance. Hoping for a thorough consideration of the whole matter by the committee to whom they were referred, permit me, to that end, to suggest the same reference of this additional memoranda.

THE TUNNEL.

All the air that is supplied to the Senate Chamber and to the committee and other rooms of the Senate wing of the Capitol is brought into the building through a tunnel of 35 square feet area of cross-section at its smallest part, supplemented by an opening of 13 square feet area, which communicates with the outside air through the grating on the terrace along the line of the west wall. This gives a total area of 48 square feet of opening through which all the air must pass that enters through the fans or that requires to be modified in temperature or humidity.

Of this total of 48 square feet such is the arrangement that not more than 30 can be assigned to the supply of the Chamber, which, if so assigned, leaves 18 for the supply of all the other rooms and the corridors of the entire wing.

In its application to the Chamber the result of this contraced area would be as follows, viz: Taking the minimum amount of air required for the Chamber, as given in previous papers, viz: 35,000 cubic feet per minute, the velocity of air passing through the tunnel must be 1,361 feet a minute; or, taking the number of persons frequently present in the Chamber, and reducing the supply of air per person to the lowest amount that any engineer of experience would sanction, the required velocity would be 1,555 feet a minute; or again, taking the number present on occasions of ceremony, and giving the same reduced volume per person, the required velocity would be 2,372 feet a minute.

It is not practicable to maintain such a velocity without increased power, and if practicable is extremely undesirable.

As to the area of 18 square feet remaining for the ventilation of the rest of the entire wing, if the air passed through it with a velocity of 1,200 feet a minute it would suffice to change that in the building once an hour.

How entirely inadequate these areas are to meet the requirements of the work to be done, is well illustrated by a reference to the provision made for the ventilation of the corresponding hall and rooms of the House of Representatives.

For the ventilation of the hall and lobby exclusively there is provided a tunnel of 75 square feet area of cross-section at its smallest part; that it is not greater than is requisite, is made clear by a consideration of the results in practice, as ascertained by careful measurements by an anemometer, showing that on ordinary occasions, or with the minimum supply to the hall in winter weather, the velocity of the air passing through the tunnel averages about 700 feet a minute, while during the joint session of the two houses of Congress on the last occasion of counting the electoral vote, it was 1,065 feet a minute, and on the occasion of the Garfield memorial services, it was over 1,300 feet a minute, which is very nearly the maximum velocity attainable with the power there applied.

In view of these figures, instead of greater capacity than is necessary, its enlargement and the consequent reduction of the velocity of the air would seem to be desirable, especially in summer, when larger volumes are pleasant, and indeed necessary for comfort, for experience shows that the temperature of the air is appreciably modified by its passage through the tunnel, the extent of the modification being in proportion to the time consumed in its passage.

In addition to the 75 feet for the hall alone there is provided 50 square feet area of opening for the committee-rooms and corridors.

Comparing these areas with those provided for the Senate wing we have the following results, viz:

	Sq. ft.
The area of opening for the admission of air to the hall of the House of Representatives is	75
To the Senate Chamber	30
To the committee-rooms of the House	50
To the committee-rooms of the Senate	18
To the entire south wing	125
To the entire north wing	48

The sizes of the two wings are equal. They are devoted to the same high purpose, and their necessities are equal in respect to the matter under consideration.

If the areas of the House wing are taken as a standard, the total of the areas for the Senate wing should be as great, even if necessity or convenience should determine a distribution modified in harmony with the relative capacities of the hall of the House and the Senate Chamber, the latter being 76 per cent. of the former. Such a distribution would give:

	Square feet.
To the Senate Chamber	57
To the rooms and corridors	68
Total	125

In connection with the imperative necessity for the enlargement of the tunnel, little need be said as to the desirability of extending it and providing for an elevated inlet to correspond with that of the House. If not required by the necessities of correspondence therewith, when viewed from *the stand-point* of the artist, its desirability and its neces-

sity, in order to secure uniform results, has been fully demonstrated, justifying the wisdom of the architect of the Capitol extension, and of the distinguished scientists associated with him, who planned and executed the work of perfecting the ventilation of the House wing.

HYDRATION.

Experience as well as scientific deduction has so fully demonstrated the necessity of hydration when the temperature of the outside air is so low as to require warming by artificial means, that nothing need be said to enforce it.

But as absolute as the necessity is, and as imperative as is the requirement of time and space in which to effect the hydration in such manner as to be agreeable, we have for the purpose the floor space of a passage 4 feet wide and 25 feet long between the coils and the uptake to the Senate floor to operate upon; while through the passage of 25 feet the air must pass, when delivering the volumes we are considering, at the rate of from 950 to 1,650 feet a minute, requiring from less than one second to about one and one-half seconds of time. To impart the requisite amount of water to 35,000 to 60,000 cubic feet of air in that time and within that space, is simply and clearly impossible.

This passageway, which affords us the only space for hydration, is part of the connecting passage between the tunnel and uptake to the Chamber, through which all the air that goes to the floor must pass. Its area of cross-section is practically that of the tunnel at its smallest part, viz, 37 square feet, and must be enlarged to make the enlargement of the tunnel effective.

This necessary enlargement for volume of air will necessarily give more space and time for hydration, though hardly a tithe of what is necessary for satisfactory results, such results as should be certainly and uniformly maintained in the ventilation of the legislative hall of the United States Senate.

If in preparing plans for such enlargement of the tunnel and passages as is above contemplated, architectural difficulties should be encountered on account of the relative position of the uptake, fans, and supporting walls, it would be important to consider the advisability of moving the warming coils to the other side of the fans, outside of the building, and in or near the line of the tunnel.

REMOVAL OF THE VITIATED AIR.

The air having passed through the Chamber and done its work, becoming vitiated, is removed from the Chamber, escaping through appertures in the ceiling to the loft above, from whence it is drawn down to the basement by the action of special fans for the purpose, and being forced into other shafts, is finally returned to the top of the building and there discharged.

The removal of the vitiated air and the maintenance of a current through the Chamber is entirely dependent on these exhausting fans, and while they are not employed in the ventilation of any other portion of the building to any considerable extent.

It is very desirable and important that a current of air through the Chamber and the entire building should be maintained at all times, day and night, in cold as well as warm weather, in times of storm as well as of calm, and that it should be done with certainty and economy.

It is also very desirable and important that we should be able to use the exhaust fans for the ventilation of the sub basement, including the kitchen, the air from which, heated and charged with the odors of the

boiler room, engine rooms, and kitchen, having no other outlet passes up into the corridors and restaurant above by every available opening, and also for the ventilation of the corridors which now have no outlet except as windows are opened. All this may be accomplished by placing louvered openings at the roof similar to those in use on the House side. Their construction is not expensive, they are conveniently operated, and as there applied have been so complete a success that the exhaust fans are never applied to the hall, but are used exclusively for the ventilation of the corridors and sub-basement.

This arrangement contributes also to safety from the possible accumulation of gas in the building and especially above the ceiling where a thousand burners are placed.

With these louvers in operation a dangerous accumulation of gas through accident, oversight, or malicious design, is almost impossible.

Very respectfully,

T. A. JONES,
Chief Engineer United States Senate.

ARCHITECT'S OFFICE, UNITED STATES CAPITOL,
Washington, D. C., June 3, 1884.

SIR: Having examined the report of Mr. T. A. Jones, chief engineer heating department of the Senate, which you referred to me for my views thereon, I have to say in reply that I approve of all the important recommendations made, especially those relating to the increase of the openings in the floor of the Senate Chamber, the louver openings in the roof, and the arrangement for the exhaust fans to draw air from the corridors and stairways.

The repairs to the engines and heating coils will be made and paid for out of funds provided for the annual repairs, but the other improvements, mentioned by Mr. Jones, were not included in the annual estimate; in consequence, the sum of $6,000 will be required to provide them.

Very respectfully, yours,

EDWARD CLARK,
Architect United States Capitol.

Hon. WILLIAM P. CANADAY,
Sergeant-at-Arms, United States Senate.

[Senate Mis. Doc. No. 4, Forty-eighth Congress, first session.]

Letter of Hon. R. J. Bright, Sergeant-at-Arms of the Senate, transmitting report of Chief Engineer T. A. Jones on heating and ventilating the Senate Chamber.

DECEMBER 4, 1883.—Referred to the Committee on Public Buildings and Grounds and ordered to be printed.

SERGEANT-AT-ARMS UNITED STATES SENATE,
Washington, December 1, 1883.

SIR: The reports of T. A. Jones, chief engineer, in reference to the heating and ventilating of the Senate Chamber, are submitted herewith.

Very respectfully,

R. J. BRIGHT, *Sergeant-at-Arms.*

Hon. GEORGE F. EDMUNDS, *President of the Senate.*

Areas of shafts, ducts, and perforations in the main and gallery floors and in the ceiling of the Senate Chamber connected with the ventilation of the same, with observations relating thereto.

Area of section between the main fan and coils, 36 square feet.

Area of section between the coils and mixing chamber, 37 square feet.

Area of section between the mixing chamber and main up shaft, 33 square feet.

Area of section of main up shaft (to Senate floor), 38 square feet.

Area of section of main up shaft to gallery floors, 23 square feet.

As at present arranged the main up shaft supplies the main floor and cloak-rooms exclusively, while the one to the gallery supplies that floor only. Omitting the cloak rooms, and using for calculation the volumes hereinafter indicated, viz, 5,000 cubic feet to the main floor and 30,000 to the galleries, the following is the present situation with reference to the service required of the two shafts, viz:

The 23 feet shaft must deliver 30,000 cubic feet of air, requiring a velocity of 1,304 feet.

The 38 feet shaft must deliver 5,000 cubic feet of air, requiring a velocity of 131.6 feet.

These two shafts are supplied from one common volume; consequently the pressure at their respective entrances is the same. This necessitates the closing of the entrance to the main shaft to such proportions that the velocity imparted by the pressure necessary to give the required velocity in the gallery shaft, multiplied by the area of the opening, shall not exceed the 5,000 cubic feet, that being the maximum quantity that can be admitted to the main floor with the present openings therein.

The solution of the difficulties involved in this situation that most readily presents itself is to provide connections between the area under the main floor and that under the gallery floors, and supply the gallery, at least in part, from the volume of air furnished through the main up shaft.

Supposing it all to be furnished through that shaft, the required velocity of current would be only 921 feet per minute, against 1,304 feet now required through the gallery shaft to supply the gallery alone.

Area of openings in the main floor of the Senate Chamber.

	Sq. feet.
In the face of the rises	20.8
In the floor registers, allowing covers to be raised one-fourth inch	8
In grating in the floor around the walls	19.8
In hooded gratings in the walls, above the floor	9.4
In circular registers in the southeast and southwest corners	7
Total	65

Supposing the average number on the floor, on ordinary occasions, to be 100 persons, and 50 cubic feet of air to be supplied to each person per minute, the total requirement will be 5,000 cubic feet a minute, which is a volume due to a uniform velocity of 77 feet through all openings.

Some good authorities say that a current moving 100 feet a minute will not be perceptible, generally, to persons in good health; but experience shows that Senators do not bear other than a very low velocity from the risers and the floor registers, the currents from which impinge directly upon the feet and ankles, for the latter are generally closed down to one-eighth inch opening, while many are entirely closed, or are covered

books and papers; and some Senators require the openings through
e risers back of them to be closed. With such experience we cannot
pe to maintain a uniform initial velocity through those openings of
ore than 50 feet a minute. Accepting that velocity through them to
such as can be uniformly maintained, in order to give the proposed
tal volume of 5,000 cubic feet a minute, it will be necessary to secure
uniform velocity of 98⅓ feet through all other openings in the floor.
ıey are so situated that that velocity through them will not be annoy-
g.

Such a distribution of air is very imperfect, while at the same time
e total volume is often very inadequate, as frequently the number on
e floor is much greater than 100, and on occasions of ceremony, as
r instance the induction to office of the Vice-President, is five or six
nes that number.

But accepting the present area of openings as all that can be secured
present, the above proposed quantity and velocities is all that can
) successfully maintained.

Area of openings in the gallery floor.

	Sides of the gallery.			
	North.	South.	East.	West.
	Sq. feet.	*Sq. feet.*	*Sq. feet.*	*Sq. feet.*
the face of the steps	25.50	21.25	12.75	12.75
the face of the seats	11.00	13.00	8.60	9.00
the perforations of the seats	5.50	7.30	5.80	5.70
the grating around the walls	14.35	14.35	10.83	10.82
the registers in the reporters' gallery	1.50			
Total	57.85	55.90	37.98	38.27

Giving a grand total of 190 square feet.

Supposing the average number in the galleries, on ordinary occasions,
) be 600 persons, and 50 cubic feet of air to be supplied to each person
ɜr minute, the total requirement will be 30,000 cubic feet a minute,
hich is a volume due to a uniform velocity of 158 feet through all
penings.

This is a velocity clearly inadmissible through the openings in the
ıce of the seats, where the current impinges directly upon the legs
elow the knees, which being necessarily near the openings, receive the
ıll force of the current, without deflection or diffusion to any great
xtent.

As at present arranged, a velocity greater than 50 feet a minute can
ot be borne without discomfort.

A velocity of 158 feet a minute is nearly equally inadmissible through
he openings in the face of the steps; for apart from other considerations,
he distance being short and the elevation of most of them comparatively
ıigh, that velocity would carry a large portion of the air over and beyond
he balustrade without benefit to those in the galleries. Good results
an hardly be secured with a velocity greater than 100 feet a minute
rom those openings.

Again, the result from the openings secured by the perforations of
he seats can hardly exceed 25 per cent. of that due to the area of those
penings, as when the seats are occupied no air can escape from a large
)roportion of them.

Reducing the velocities and volume as indicated, in order to secure the proposed total volume of 30,000 cubic feet it will be necessary to secure a uniform velocity of 400 feet from all the other openings. If this velocity could be uniformly maintained, and was tolerable in the situation of those openings, it would be subject to the objection that it would carry the volume of air beyond the point of diffusion where it would benefit those for whom it was introduced.

Clearly, no reasonable satisfactory result can be secured without at least doubling the total area of openings in the gallery. How to do it in a manner that will avoid obnoxious currents and secure diffusion at the points desired, is a problem requiring much consideration.

The inadmissibility of currents of other than a low velocity through the openings in the face of the seats and the face of the steps, and indeed through the gratings in the floor around the walls, is practically demonstrated by the fact that all the openings in the south gallery and in the southeast and southwest corner sections are now closed, with inconsiderable exceptions, or all over an area of about one-third of the total area of the galleries. The reason they are closed in the south side and contiguous sections, and not on others, is that the larger part of the entire volume of air for the galleries is delivered under the floor on the south side; and as no deflectors for the current were used, and the means originally provided for controlling the admission of air to individual sections of seats were removed, the pressure at all points on that side gave a greater velocity than could be borne from any of the openings, so all were closed, with the inconsiderable exceptions referred to.

OBSERVATIONS RELATING TO CURRENTS.

The area of the main floor of the Chamber is 4,284 square feet. The height to the top of the balustrade is 13½ feet. Five thousand cubic feet of air per minute delivered upon an area of 4,284 square feet necessitates, in this case, a movement from the floor upwards at the average rate of 1.167 feet per minute, requiring 5 minutes to rise to the average height of a man; being delivered at the surface of the floor and discharged through an area of the same section 13½ feet above. Can the desired purity of air be maintained at every point within the first 6 feet above the floor?

The area of the gallery floors is 4,357 square feet; 30,000 cubic feet delivered upon an area of 4,357 square feet necessitates an upward movement, in this case also, of 6.9 feet per minute; a velocity that would give good results.

A consideration of the relation of these two currents is important. The situation is this, viz:

The current over the main floor is moving upwards 1.167 feet a minute. The current over the gallery floor is moving upwards 6.9 feet a minute. There being no partition between the two columns above the upper line of the balustrade, their contiguous sides there impinges upon one another; the slow moving column is lifted, causing a reduced pressure below, and the air from the gallery column rushes over the balustrade and down towards the floor to restore the equilibrium.

For clearness of conception another view may be presented, as follows: Suppose the amount delivered to the galleries, plus that delivered to the floor, to be discharged uniformly upon an area equal to that of both; the following would then be the situation, viz: the column below the balustrade would move upwards 1.167 feet per minute, while that above and resting upon it would be moving 4.05 feet per minute. The result

to downward currents would be the same as in the former, excepting t their velocity would be less. These downward currents in the amber are an observed fact, and at times have caused much annoy- e. That they result from the cause indicated may be inferred from farther observed fact that they exist on the north side and contigu- sections of the Chamber, and not on the south side, on which latter e, as we have seen, very little air is admitted to the gallery.

These considerations suggest the inquiry, Can anything be done to trol these currents apart from the admission of a much larger vol- e of air to the floor than may be immediately practicable? and this ds to a consideration of the openings in the ceiling for the escape of air after it has done its work. They are as follows, viz:

Areas of openings in the ceiling.

	Sq. feet.
ough the fretwork around the walls	65
ough the next line of openings, hooded by glass plates	72
ough the second line of openings, hooded by glass plates	63
ough the openings around frames under the gas jets	42
Total area of present openings	242

t will be observed that these openings are distributed over the entire a of the ceiling with approximate uniformity, and that their total area nearly equal to that of the openings provided for the ingress of fresh , and is greater than that of those in actual use; and, consequently, y exercise no controlling influence over the direction of the currents low them. If the total area of these openings should be reduced to ch less than that of those in the floors, and those left open be such are over the galleries, the result would be an accelerated movement ard them of the currents below the ceiling, such as would measur- ly counteract the tendency to flow outward toward the center and nward, as now exists. A very great reduction is not incompatible h the easy and prompt removal of all the air now admitted, or that s desirable even to admit to the Chamber.

As at present arranged, the total area of openings through which the ole volume of the air must finally pass is reduced to 33 square feet, t being the area of the openings through the ducts and partition in- posed between the space over the ceiling and the descending exhaust fts through which it is finally discharged. Those ducts and parti- n openings should be enlarged to at least the capacity of the descend- shafts, thus removing all impediment to the application of the austing power directly at such points and in such manner as will in controlling the currents below the ceiling. Considering simply efficiency of the exhausting apparatus, the power of the exhaust s is now expended in drawing the volume of vitiated air through nings of 33 square feet area, while 48 square feet was originally vided, and is yet available.

The necessary conclusions from all these considerations may be thus med up:

st. The total area of openings in the main floor should be doubled. locate the additional openings where they will be efficient, and not roduce obnoxious currents, but rather modify those now existing, is difficult.

d. The total area of openings in the gallery floor should be increased ee-fold. It is not so easy to locate them where they will not be ob- tionable, but special consideration will solve the difficulties involved.

d. Ducts connecting the area below the main floor with that below

the gallery floor are necessary in order that the large capacity of the main up shaft may be made available in supplementing the smaller capacity of the gallery shaft to conduct the larger volume of air required for the galleries.

4th. The openings between the space above the ceiling and the descending exhaust shafts should be enlarged to at least 50 square feet.

5th. The openings through the ceiling which serve for the passage of the vitiated air from the Chamber should be so located and so calibered as to be made as effective as possible in controlling the currents of the Chamber.

These considerations are based upon the present plan of exhausting the air, and upon that of supplying directly to every part of the main and gallery floors the air needed for the ventilation of those parts.

T. A. JONES,
Chief Engineer.

JULY 28, 1883.

Observations relating to the location, area, &c., of additional openings to the Senate Chamber for the admission of fresh air.

As has been already noted, a greatly enlarged area of openings is needed if we accept 50 cubic feet a minute for each person as the required volume to secure a satisfactory ventilation.

After the experience had of the difficulty of securing satisfactory results in the ventilation of the two Houses of Congress, that volume for the average number of persons present on ordinary occasions may be accepted as the minimum requirement, while provision should be made for a similar supply to the greatest number present on occasions of ceremony or of special interest, if possible; say for 500 on the floor and 1,200 in the galleries.

Again, experience in these same halls has determined the conclusion that for winter ventilation a velocity of movement of air exceeding 50 feet a minute is not admissible where it impinges directly upon the person. In such situations, therefore, we may accept the 50 feet as the maximum velocity admissible, while the lower the velocity the more satisfactory is the result. In summer weather, when a fanning movement is pleasant and not injurious, the openings that will be necessary to secure the above result will be such as will admit of the desirable fanning process.

Again, considering the peculiarity of the situation as regards the relative location and grouping of the persons in the Chamber and the relative space per person, there being, taking average numbers on ordinary occasions, 100 persons on the main floor in an area of 4,284 square feet, and at an elevation of 13 feet above them, within the same common exterior walls, 600 in practically the same area, the question arises, can the greater relative space of the main floor be made available to supply to the galleries fresh air of the desired purity? When we state that the degree of purity desired for the air supplied to the galleries is the same as that of the air supplied to the main floor, viz, that of the outside air, and bear in mind that the air admitted to the main floor must necessarily be vitiated to the extent due to the number of persons on the floor before it rises to the galleries, the question is already answered in the negative, and the answer is reinforced by the consideration that the air admitted to the floor must rise vertically 13 feet to the top of the balustrade, and having at that line a vertical direction, and a ve-

ity in that direction due to the relation between the increased volume
l the area of the floor, must be deflected at nearly right angles to
ich and be diffused among the persons in the galleries, and must then
ain rise vertically to the ceiling to be finally discharged, which are
actically impossible conditions.

Other considerations tend in the same direction, and necessitate the
nclusion that the air supplied for the use of those in the galleries
ast issue directly upon the floor of the galleries, as that designed for
e use of those upon the main floor must issue directly upon that floor.
nd though it may be important and even necessary, in order to com-
etely control the currents in the Chamber, that the volume of air
lmitted above the area of the main floor shall nearly equal that ad-
itted above the area of the gallery floors, it cannot be satisfactorily
ilized for the ventilation of the galleries, however greatly in excess
the requirements of those occupying the main floor.

Again, it is not sufficient that the determined total volume be deliv-
ed within the limits of the given area and be removed therefrom in the
ecified time. It must be so diffused that every portion of that area
ıall receive its relative proportion of the total supply; or it must be
livered in such proximity to the persons for whom provision is made
ithin that area that each one will receive the full benefit of that pro-
rtion provided for him.

These alternate propositions may present very different conditions,
hich cannot be now discussed; but the total volume being determined,
ıd that total volume limited to the quantity required for the minimum
ımber, the latter secures the best result, and may be most easily at-
ined.

The problem presented for solution by the considerations thus far en-
rtained, limited and made more definite by the location of the persons
ithin the respective areas under consideration, and by the exclusion,
r the time being, of all provision for greater than the average number
ı ordinary occasions, is:

1st. Where can we locate openings within the limits of the area of the
ain floor through which we can supply 50 cubic feet of air per minute
each of the Senators and officers of the Senate in their respective
ats, and to other persons, the number of whom brings the average
ımber on the floor to 100 persons, in the place usually occupied by
em?

2d. Where can we locate openings within the limits of the area of the
lleries through which we can supply 50 cubic feet of air per minute
each of 600 persons seated on the benches provided for them therein?

3d. How shall we arrange such openings when located so that the
iven volume may be delivered without a current of greater velocity
ıan 50 feet a minute impinging upon the person of any individual?

Before these questions can be answered intelligently we must con-
der another, viz: What space within the limits of the respective areas
available for such openings? We have presented, in general, the
oors, the bounding walls near the floors, and the face of fixed desks
ıd seats.

Are the floors available? Experience demonstrates that openings in
ıe horizontal section of the floors, in exposed situations, or where they
ınnot be shielded, are made a common receptacle for expectoration,
ıd, to some extent necessarily, of the sweepings of the floor, which are
r may be as offensive; and a large portion of the air that passes to the
hamber through them must pass over and in contact with such offen-
ive deposit, which is apparent to the eye and not less so to the sense

of smell. So serious and so practically irremediable is this objection that, without considering others which might be presented, the floor in such situations must be abandoned as available excepting as a dernier resort, and when we exclude such exposed situations, and such as cannot be shielded without serious inconvenience, very little of it is left.

That portion of the main floor which is now utilized by the insertion of gratings around the bounding walls is in a comparatively little exposed situation, and the volume of air admitted through it is very important in securing the general result desired.

The large circular registers in the southeast and southwest corners of the floor are admissible as being easily removed and admitting of daily cleaning beneath, if necessary; and the shielded registers under the desks are so situated as to be out of the way, so that while they are of little service in winter ventilation, they are unobjectionable and serve a good purpose in summer; but as at present arranged and furnished, no other horizontal portion of the main floor can be used for the insertion of grating or hooded registers without involving the inconvenience or offensiveness referred to, while in the galleries absolutely no portion of the floors is available for increase of openings, for the reasons above given, which there apply with greatly increased force, as was strikingly indicated by the condition of things under the grating around the wall of the south gallery, where the extent and the offensiveness of the deposits referred to was conspicuously manifested, being retained by the paper which was inserted beneath the grating to prevent the flow of air through it. To utilize the openings already provided through those gratings is very desirable, and it may be done by restoring the seats that were removed when they were inserted, as the seats may be so arranged as to serve both as a shield to the openings and a deflector to the column of air admitted through them.

Again, are the walls available? In general, the surface of walls is extremely convenient for the insertion of registers or grating, giving openings for the passage of air through them, and as the initial direction of the air thus introduced is parallel with the surface of the floor, thus securing a wide diffusion, such openings would be specially serviceable in maintaining the general purity of the air upon the main floor of the Senate Chamber at all times, and in furnishing a supply for special occasions when the space contiguous to the walls is fully occupied. At the same time such openings are entirely free from the objections heretofore noted in the case of openings in the floor.

If subject to any other objection in this case it will be suggested by the question: Can additional openings be made in the walls bounding the main floor of the Senate Chamber without marring their artistic beauty? While architectural details and artistic ornamentation should conform to the requirements of necessary or important use, yet the general effect of the proportions, contour, arrangement, and coloring of all that pertains to the finish of those walls is so pleasant that we may reasonably hesitate to make any, however slight, without an artistic judgment as to its artistic effect. Doubtless this was not lost sight of by the architect in the original plans for the ventilation of the Chamber, for provision was made for about 9½ square feet of opening, which is so situated and so artistically shielded as to add to the general pleasant effect of the ornamentation. If the necessity could have been foreseen before as well as after thirty years of experience it is reasonable to suppose that a greater area of openings would have been provided and with equal artistic effect. Can it be now done? While not at-

tempting to answer the question the following may show its importance and aid in a solution:

1st. It is very important to utilize more of the space provided by the face of those walls. We may safely use stronger language and say that satisfactory results cannot be attained without it unless it be by the introduction of other arrangements less convenient, and it may be more objectionable.

2d. The face of the projecting section immediately above the floor, which constitutes the architectural base of the wall, affords sufficient space for openings equal in area to one-half of all the present openings.

3d. Openings there located may be arranged as at least to be not conspicuous, or indeed at all observable from the galleries or distant parts of the main floor; and,

4th. Whatever the artistic effect in situations that are exposed to view, a large portion of the base of the walls is shielded from observation by furniture.

In regard to the walls bounding the gallery floors, such is the necessary location and arrangement of the seats, and so greatly different are the conditions with regard to the general ventilation of the Chamber that they cannot be advantageously used excepting to a very limited extent, and all the advantage that could be gained from their use may be secured by restoring the seats around the walls as above proposed, and continuing the openings through the grating in the floors.

There remains on the main floor the vertical front of the Secretary's desk and of the risers to the platforms of the President and Secretaries. These may be utilized, and though the extent of area they are capable of affording is small, it is important to the full extent of that area.

The space afforded by the vertical portion of the main floor, viz, the face of the risers, is extremely important. Openings through it are subject to none of the objections to openings in horizontal sections, and the air delivered through them is delivered and diffused at the most important points; therefore it should be utilized to the greatest possible extent, which is not now done.

The proportion of the present area of openings to the total area of surface available is less than 22 per cent. It may be fully doubled by introducing grating of a different pattern, which may be made sufficiently ornamental, and so as to be more easily cleaned.

The additional openings thus gained would amount to 20.8 square feet, which is equal to nearly one-third of the present total openings.

We have now considered the availability of all the space that is apparent, in both the main and gallery areas, for increase of openings for the admission of fresh air, excepting that of the face of the benches in the galleries, or the vertical portion between the seat proper and the floor; and if we accept the previous reasoning, it is the absolutely only place where additional openings can be made that will be at all useful, or even tolerable, without a change in the arrangement of the galleries, which will sacrifice somewhat of their present seating capacity.

Fortunately that space is available and is sufficient. Plans for its utilization may be best presented by considering it in sections of the length required for seating one person. If we accept 20 inches as that required length, we have a space of 20 inches long by 15 inches high, equal to 300 square inches to work upon. The area of opening required for the delivery of 50 cubic feet of air per minute, having a velocity of 50 feet a minute, is 144 square inches. With this data three plans are practicable, viz:

1st. Insert a metal grating with openings that shall aggregate 144 square inches, uniformly distributed over 300 square inches, in place of the present face board, and, completing the inclosure of the space under each seat, provide for an adjustable opening to that space, so that the opening may be increased or diminished as experiment may determine is necessary, in each particular case, to give the determined velocity of current through the grating. This arrangement is entirely practicable, and it will be seen at a glance that when applied to every 20-inch section in the gallery seats the determined quantity, at the specified velocity, may be delivered to every one of the 1,200 persons, more or less, for whom there is room.

2d. Another plan is partially outlined in Figures 1 and 2, annexed. In Fig. 2 A B may represent the present face board set back 3½ inches at the bottom; C the vertical section of opening through it, over which is to be placed a sliding cover to control the volume of air passing through it; D E a deflecting board, and F an inch square or round support at the corners. Fig. 1 represents a front view, in which the opening C, 7 by 10 inches, is seen bounded by the dotted lines behind the deflecting board, the free border of which is represented by the line *a b a b*, the upper border abutting against the seat. In this place the air, after being twice deflected, issues through the 3½ and 4 inch sections on each side of and below the deflecting board, which aggregate an area of 144 square inches. This plan also is entirely practicable, and will give the same general result as the first.

3d. A third plan is represented in Fig. 3, in which A is the opening through which the air is admitted, and which, as in the other plans, is to be furnished with a sliding cover; B is a shield 4 inches deep, to give direction to the current through A, and at the same time to prevent the sweepings being carried into that opening, C, 3 inches deep, designed to support the front of the seat and also to deflect the current to some extent, and D represents a small column for such support to C as may be required. This plan admits of considerable variation in details which may modify results.

As sketched, it gives a section of 230 square inches for the final issue of the air, or nearly 50 per cent. more than the other plans, or than we have determined to be necessary. As in the case of the others, it is entirely practicable, and when extended to every 20-inch section meets the full requirements of the largest number that can be seated.

THE MAIN FLOOR.

Before proceeding further in the consideration of the subject with reference to the main floor, it will be convenient to restate what is required in that area according to the premises we have laid down, and to ascertain what we have secured toward meeting that requirement.

1. We require for the supply of the accepted volume of air delivered at the accepted velocity, to the minimum number of persons on the floor on ordinary occasions, openings aggregating 100 square feet, and as this is for the minimum number the openings must be so situated as to deliver the air in such proximity to those persons that they will receive the full benefit of the proportion provided for them, or more specifically, they must be so situated as to deliver the air within that portion of the general area that is occupied by the Senators, officers, and employés in the transaction of the business of the Senate, and which we may accept as covered by the openings in the risers, the Hayden registers, and the additional openings proposed in the face of the desk of the Secretaries and contiguous risers.

Tabulated we have—

	Square feet.
Required for the minimum number	100
Of which we have area of opening in the risers through the present pattern of grating	10.8
In Hayden registers	8.0
In increase purposed by changing grating pattern	20.8
In increase purposed by openings around platform	8.2
Giving total of	58
Leaving yet to be provided for	42

We have already exhausted all the space we have deemed to be available for the insertion of grating in the floor, and as at present arranged there is no other fixed surface, horizontal or vertical, within the given area that can be so used, and some other plan must be devised to secure the end necessary. Such a plan is presented in a practical modification of the supports of the desks of Senators.

To make such a modification acceptable, it must be made without encroaching upon the space under and around the desk that is necessary for convenience in use or in passage between them; and such is possible. It cannot be advantageously described without drawings, which cannot be now furnished; but its nature and practicability may be presented as follows: In lieu of the base of the present supports substitute others, of metal plates and hollow, the internal section of which, on a plan, would correspond in length with the measure of the desk proper from before backwards, and be in width, say, 2 inches. Let it rest over an opening in the floor, just inside of the section covered by the feet of the present supports, and rising to the height of the book-shelf be turned outward and downward, with a top finish to which the present support, from the center upwards, may be secured. This would probably be the least artistic and least convenient arrangement of the plan that could be adopted, but it is given as that which may be most intelligently presented without the aid of drawings, and which may, with a moment's consideration, be recognized as practicable and subject to no serious objection.

By such an arrangement we have a column of air of 40 square inch section passing upwards to the height of the shelf and discharged downwards upon the floor on each side of the desk, where it can impinge directly upon no one, but is diffused immediately around and among those for whose comfort and benefit it is introduced; and the total area of openings thus secured will be that for which we are now seeking to make provision, viz, 42 square feet.

Having provided satisfactorily for the minimum number on the main floor, there remains to be provided for the additional area necessary for the maximum number, which of course includes the minimum. What is required, and what is already provided for, may be tabulated as follows:

	Square feet.
Required for the maximum number	500
Of which we have—	
Area of openings now in use	65
Area of additional openings provided for by changing pattern of riser grating	20.8
Grating in Secretary's desk and adjacent risers	8.4
Utilizing the base of the walls	30.8
Modification of desks	42
	167
Leaving yet to be provided for	333

The simple statement brings us face to face with an impossibility, without a liberal use of the floor, and it may serve to emphasize the necessity of using to the utmost the space that we have accepted as available.

Again, if we suppose that on occasions, and during the time when 500 persons are on the floor, we may safely increase the velocity of currents to 100 feet a minute, making the area we have and that provided for equivalent to 334 square feet, we will still require 166 feet, which is almost equally impossible of attainment without using the floor, and it may serve to still further emphasize the necessity of attaining to the utmost all that is possible without such use.

Or again, abandoning all attempt at adequate provision for 500, as being a number rarely present, and as, when present, admitting of open doors to Chamber on both floors, and confining our effort to providing for 200, a number frequently present, to supply them we must increase the velocity of currents of ingress 20 per cent. to give the proposed supply.

And further, after having introduced all the additional openings provided for, the volume that it is practicable to admit to the area above the main floor is so small in comparison with that which must be admitted above the gallery floors, that it may be very difficult to control the objectionable currents in the Chamber.

In view of the results of this present consideration, we must reverse the opinion previously expressed, that it was easy to satisfactorily locate additional openings to the main floor, but difficult in case of the galleries. The "much consideration" must yet be given to the main floor, and though the difficulties in this case are now manifestly very great, they are not impossible of solution. And we should not be satisfied until the ventilation of the Senate Chamber shall be perfect for the largest number for whom provision is ever made.

T. A. JONES,
Chief Engineer

AUGUST 20, 1883.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 104.

IN THE SENATE OF THE UNITED STATES.

JUNE 10, 1884.—Ordered to be printed.

Mr. VOORHEES submitted the following

RESOLUTION:

Resolved, That the Secretary of the Interior be, and is hereby, instructed to furnish to the Senate, at the earliest possible moment, copies of all contracts made by the United States with citizens, for furnishing beef cattle to the Indians of the southern and northern superintendencies during the years 1883 and 1884, with names and residences of all those to whom said contracts were let, together with all correspondence and instructions from the Commissioner of Indian Affairs in any way appertaining or relating to said contracts.

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48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 105.

IN THE SENATE OF THE UNITED STATES.

JUNE 10, 1884.—Read, referred to the Committee on Appropriations, and ordered to be printed.

FORTY-EIGHTH CONGRESS, FIRST SESSION.

CONGRESS OF THE UNITED STATES.
IN THE HOUSE OF REPRESENTATIVES,
June 10, 1884.

Resolved by the House of Representatives (the Senate concurring), That the President of the Senate and the Speaker of the House of Representatives declare their respective houses adjourned *sine die* at 3 p. m. Monday, June 30, 1884.

Attest: JNO. B. CLARK, JR.,
Clerk.

8TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 106.

IN THE SENATE OF THE UNITED STATES.

JUNE 11, 1884.—Ordered to be printed.

Mr. BUTLER submitted the following

RESOLUTION:

Resolved, That for the purpose of ascertaining whether further legislation is necessary concerning national banks there be appointed from the Committee on Finance a special committee, consisting of five members, whose duty it shall be forthwith to examine into the condition of the national banks of the city of New York. That said committee be authorized to send for persons and papers, to examine witnesses on oath, and, if necessary, to visit the city of New York for the purpose of such examination; that they be required to ascertain the amount of circulation of said banks on the 31st day of May, A. D. 1884; the amount of certified checks and loan certificates issued by said banks and outstanding on said day; whether said banks or either of them have issued certified checks or loan certificates or other evidences of indebtedness upon the pledge or security of personal or real property of any kind or otherwise; what amount of certificates of indebtedness or certificates of deposit had been issued by said banks and are now outstanding; what amount of currency and of gold and silver coin said banks had on hand on said day; whether the accounts of said banks with each other were on said 31st day of May, 1884, or now are settled through the clearing-house in the city of New York, by lawful money of the United States, or by certified checks, loan certificates, or other evidences of indebtedness; whether on said day said banks had on hand the reserve required by law; and to examine fully into all matters which may be necessary to show the financial condition of said banks; and also to ascertain the amount and character of the assets of said banks; whether they are able to meet their liabilities; whether any of the funds of said banks have been illegally used by the officers thereof; and also whether they or any of the officers thereof have violated in any respect the provisions of the national banking law.

That said committee be further authorized to employ one or more special examiners to aid in such examination; that they also be authorized to employ a stenographer; and that they be required to report as soon as practicable the results of such investigation to the Senate.

And for the purpose of defraying the expenses of such investigation the sum of $10,000, or so much thereof as may be necessary, is hereby appropriated and made immediately available out of the contingent fund of the Senate.

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48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 107.

COMMUNICATIONS

FROM THE

COMMISSIONER OF PENSIONS

RELATIVE TO PENSIONS.

JUNE 12, 1884.—Ordered to be printed.

DEPARTMENT OF THE INTERIOR, PENSION OFFICE,
Washington, D. C., April 2, 1884.

DEAR SIR: In reply to your inquiry of the 25th instant as to the probable cost to increase the pensions of widows from $8 to $12 per month and that of minor children from $2 to $5 per month, also to extend the limitation of age of minor children from that of sixteen to eighteen years, I have the honor to submit the following for your consideration:

It is not known by the term you use of "widows" whether you intend to confine the estimate to that class or those whose names are on what is termed the "widows' roll," in contradistinction to the "invalid" roll. The several classes so included are: 1st, widows; 2d, minor children who are pensioned in their own right; 3d, dependent mothers, and 4th dependent fathers.

I will give the estimates for each of the classes named on the basis of the "total" (as technically used) pension.

The $2 per month now allowed on account of each minor child is an "additional sum to the pension," so that in the case of a widow, who has a child or children under sixteen years of age, and of minor children who are receiving jointly a "total" pension in their own right, this pension of $2 per month for each child is additional to the total pension.

The dependent mothers and fathers receive no pension in excess of total.

In the estimates, all that relates to the additional $2, or proposed $5, for each minor child, will be stated separately.

The approximate number of those who are receiving a higher rate for the "total" pension than $8 per month will be excluded.

Classes.	Number of pensioners.	Present annual value of the roll at the rate of $8 per month.	Net increase per annum, if pension increased from $8 to $12 per month.
Widows	42,872	$4,115,712	$2,057,856
Minors	2,098	201,408	100,704
Dependent mothers	23,988	2,302,848	1,151,424
Dependent fathers	3,104	297,984	148,992
Survivors war of 1812	4,931	473,376	236,688
Widows war of 1812	21,336	2,048,256	1,024,128
Total	98,329	9,439,584	4,719,792

This shows 98,329 pensioners who will be affected, the present annual value of which is $9,439,584, and the proposed net increase for one year will be $4,719,792. To this should be added the proposed increase of the "additional" sum from $2 to $5 per month on account of each minor child, *e. g.*, there are 14,146 children under sixteen years of age. The present annual value of same, at the rate of $2 per month for each child, is $339,504. Increasing the rate from $2 to $5 per month would give a net increase for one year of $599,256, or a total net increase for one year, for all the pensioners named, of $5,229,048.

I am, sir, very respectfully,

W. W. DUDLEY,
Commissioner of Pensions.

Hon. JOHN I. MITCHELL,
Chairman Committee on Pensions, United States Senate.

DEPARTMENT OF THE INTERIOR, PENSION OFFICE,
Washington, D. C., April 10, 1884.

DEAR SIR: In reply to your inquiry of 25th of March, 1884, that I would furnish you with an estimate of the cost to pay arrears of pensions, providing the limitation of the act of January 25, 1879, should be extended to January 1, 1885, I have the honor to submit the following statements on that subject for your information:

The limitation of the act of January 25, 1879, expired June 30, 1880, so that claims which have since been filed, and those hereafter filed, up to January 1, 1885, would be affected by the extension of the limitation.

It has always been difficult to give estimates of the proportion of claims which would be likely to receive favorable action out of the whole number filed, and with the material at hand. I will first treat of this branch of the subject.

Up to July 1, 1880, there had been filed in this office 679,945 claims on account of Army service, as follows:

For Army invalids	405,858
For Army widows, &c	274,087
A total of	679,945

Now, out of the 405,858 Army invalid claims filed, a little over 58 per cent. have been allowed (237,441) up to July 1, 1883. On this latter date there were of this class 111,730 claims actually pending; so if these shall be deducted from the whole number filed it will show that 294,128 of the same have been adjudicated, and 82 per cent. of such adjudications has been by allowance of pensions.

I should therefore estimate that of the whole number of invalid claims filed, 75 per cent. will eventually be allowed. This would be an equivalent estimate that 56 per cent. of the claims reported as pending July 1, 1883, which were filed prior to July1, 1880, would ultimately receive favorable action. The larger portion of these pending claims were filed between January, 1879, and July 1, 1880.

Of the 274,087 Army widows' claims filed prior to July 1, 1880, a little over 73 per cent. have been allowed (201,446 est.) up to June 30, 1883. On this latter date there were of this class actually pending 34,485 claims; so if these shall be deducted from the whole number filed it will show that 239,602 of the same have been adjudicated, and 84 per cent. of these adjudications has been by the allowances of the pensions.

I should therefore estimate that of the whole number filed of the widows' class, fully 80 per cent. will eventually be allowed. This would be an equivalent estimate, that 54 per cent. of the claims reported as pending July 1, 1883, which were filed prior to July 1, 1880, would ultimately receive favorable action.

The details herein stated are, I think, sufficiently conclusive, in showing that the estimates of the probable number of claims which will be allowed, out of the whole number filed, is at the minimum.

The next subject for consideration is the probable number of claims which will be filed from the passage of an act extending the arrears limitation until January 1, 1885.

Going back to the former arrears act, which was operative during a period of seventeen months, I will compare the number of claims which were filed during that time with those filed during the seventeen months immediately preceding.

(1.) *Number of claims filed from September* 1, 1877, *to February* 1, 1879.

Army and Navy invalids	24,151
Army and Navy widows, &c	8,385
Total	32,536

(2.) *Number of claims filed from February* 1, 1879, *to July* 1, 1880.

Army and Navy invalids	148,272
Army and Navy widows, &c	34,230
Total	182,502

This shows an increase in the number filed of 513 per cent. of the invalids, and 308 per cent. of the widow's claim.

Another interesting fact is worthy of mention. That is, immediately preceding the arrears period the average number of claims filed annually for three years was:

Army and Navy invalids	16,306
Army and Navy widows, &c	5,908
A total average of	22,214

And for the three years since the arrears limitation (July 1, 1880) to July 1, 1883, the average number filed annually was:

Army and Navy invalids	28,027
Army and Navy widows, &c	11,147
A total average of	39,174

To estimate the number of claims which would be filed during the operation of another arrears act is mere conjecture, but herewith I

state with some uncertainty the probable number which will be filed' to wit:

Army and Navy invalids	125,000
Army and Navy widows, &c	25,000
A total of	150,000

Up to January 1, 1884, there have been filed 98,987 invalid and 39,082 widows' claims since June 30, 1880; adding these to the estimates of the numbers which will hereafter be filed, and allowing $1,100 in the invalid, and $1,200 in the widows' as first payments, the cost would be substantially as follows:

223,997 invalid claims filed; deduct 25 per cent. for rejections, and 167,990 would be allowed, and the arrears, at the rate of $1,100 per case, would be	$184,789,000
64,062 widows' claims filed; deduct 20 per cent. for rejections, and 51,266 would be allowed, and the arrears, at the rate of $1,200 per case, would be	61,519,200
A total of 275,253 claims, at	246,308,200

It will be seen that I have estimated a net increase in number filed of only 62 per cent.

I am, sir, very respectfully,

W. W. DUDLEY,
Commissioner of Pensions.

Hon. JOHN I. MITCHELL,
Chairman Committee on Pensions, United States Senate.

DEPARTMENT OF THE INTERIOR,
PENSION OFFICE,
Washington, D. C., June 12, 1884.

SIR: I have the honor to acknowledge the receipt of your reference of Senate bill No. 2208, and in reply thereto submit the following statement, with certain approximate estimates made, as requested by you:

Section 1 of the bill provides a pension for all soldiers and sailors who performed a period of service not less than three months, and received an honorable discharge, during the late war, who is or shall become disabled from any cause not the result of his own gross carelessness, disreputable conduct, and vicious habits, provided he shall be dependent wholly or in part upon his own labor, or upon pecuniary assistance from others for the means of a comfortable support.

The present number of surviving soldiers of the late war who have not received a pension, or applied therefor, may be stated in round numbers at 925,000. It is impracticable to state with any degree of intelligence how many of these 925,000 soldiers who were disabled during the war, or have become disabled since the war period, either wholly or in part, and even though an attempt should be made to fix upon a number, it would be as difficult again to approximate out of the same how many were dependent, wholly or in part, upon his own labor.

It may be assumed, however, that a large majority of cases where a disability exists (and it is believed by the soldier, and often by his friends, to be the result of his service) that application therefor has been already filed. Therefore, as any estimate upon the number of new applications to be filed by reason of the provisions of this section is pure guess-work, and without any accurate data to base it upon, none

will be attempted. And such estimates as are herein given are based upon the effect that this law will probably have in cases now before the office. In the class of cases referred to the soldier often applies for pension, so that excluding from the 925,000 survivors those who will hereafter apply under existing laws, the proportion, considering the large number of survivors who will come within the description of the bill, would not be anticipated as a large one. Whatever this number may be it will be diminished when confined to those only who are dependent upon their own labor for support or the pecuniary assistance derived from others.

It will readily be conceded that the soldiery of our late army represented among the young men more than the average intelligence and business capacity of those who follow that profession in times of peace, and this cannot be better illustrated than to refer to any community where among its prosperous citizens, removed from the necessities of dependence on manual labor for support, the private soldier is not a small element by any means. As I said before, it is impracticable to state intelligently the number of the class mentioned in this section who will be benefited who have as yet never applied for pension.

The proviso commencing in line 21 and ending in line 24, which has been stricken out, relates to arrears of pension in such cases as are now susceptible of proof.

Under date of April 10, 1884, I addressed a letter to the honorable chairman of the Senate Committee on Pensions, giving the best available data on the subject of arrears. I will inclose a copy herewith for your information.

In the proviso of the same section, commencing on line 29, the *general* class to be provided for are included. It is in brief this: In all cases where an invalid has an application for pension pending, and is unable to prove that his disability was contracted in the service, and is, in fact, disabled, he has the right to elect, to waive his claim under the provisions of the general law, as it now is, to prosecute his claim under the provisions contained in this section of the bill, or, should he thereafter secure the necessary evidence, he may abandon his proceedings under this act and take under the general laws in force prior to this act, and such amendments as may be enacted from time to time.

To give an estimate of this particular class who will be benefited, you will understand, will be in part approximate, that is, all claims which are now on the rejected files, and the percentage of pending claims that would otherwise be rejected, are taken as the basis for the calculation. Of these such cases as have already been, and would probably be hereafter rejected, because there was no pensionable disability those who have died or abandoned their claim, and those who would have not title either under existing laws or the provisions of this bill, are excluded. The number is estimated at about 50 per cent., leaving in round numbers 75,000 claims that would come within the provisions of the latter proviso of this section. The annual value of these pensions would not exceed $7,500,000.

Section 2 provides that the widows of soldiers and sailors who are now receiving, under existing laws, the sum of $8 per month, by reason of the death of such soldiers or sailors, from disability contracted in service since March 4, 1881, shall be hereafter entitled to receive the rate of $12 per month, in lieu of the said $8 dollars; also, all such widows who shall hereafter be found to be entitled to $8 per month under existing laws shall be entitled to receive $12 per month.

The number of widows who are now pensioners is 42,872, approximately, and the increased cost over the present value of the roll

would be $2,057,856. Of the pending claims it is estimated that half as many more would in the future, probably, be allowed, making an additional cost of $1,000,000.

Section 3 provides that in the case of the death of an invalid pensioner, pensioned under pre-existing laws, or of any pensioner pensioned under section 1 of this bill, his widow or minor child shall be entitled in their own right without being required to prove that the death cause of said pensioner was due to his military or naval service, the rate to be twelve dollars per month in lieu of eight dollars per month. Taking, first, the minor children who are now pensioners, and would be entitled under the same conditions that their widows would in the preceding section, 2,096 pensioners, it is estimated, would be entitled to the increase from eight to twelve dollars per month, making the increased annual cost $100,704. The increase by reason of claims which may be hereafter filed out of those now pending it is difficult to estimate, but it may be stated that such annual increase would be from fifty to seventy-five thousand dollars. The provision of this section liberalizes to the extent that upon the death of a pensioner his death shall be assumed to be due to the service. The percentage of deaths among the invalid pensioners is by no means large, and the maximum number can be stated at less than three thousand annually. A large majority of these die from the disability on account of which they are pensioned, and the same is easily proven. This leaves but a small number to be benefited by this section, assuming that all shall leave a widow or minor children. It is believed that the number would be low in the hundreds. It will be observed that in section 3 the construction given to it is to entitle *all* minor children who are pensioned in their *own right* the increase of from eight to twelve dollars per month, but the language might be held as somewhat ambiguous, as its provisions relate both to widows and minor children, while section 2 provides specifically for all widows who are now pensioners.

I think that it would be wise, in order to save any misapprehension in the future, to insert in line 1 of section 2, after the word "widows," the words "*or minor child or children*," so that it shall read that "all widows or minor child or children of soldiers and sailors," &c.

Section 4 provides the continuance of pension to all widows on account of physical or mentally disabled minor children, without regard to the limitation as to age. The number thus benefited would be very small indeed, as I doubt that if it would equal one hundred in the course of a few years. You will observe that this section provides that the *pension* granted such widows *on account* of such minors, &c., shall be continued. The pension which is so granted is what is known as the additional pension of $2 per month.

The proviso sets forth that in the case of death or remarriage of such widow, or abandonment, &c., of such minor, *the pension* shall be continued to such minor or minors. The pension proper, taking the case of an enlisted man, is $8 per month, and it would seem that the proviso related to the total pension, while the first part of the section would relate only to the additional pension of $2 per month. I do not know whether this is the intention, but merely invite your attention to it. As the number will be so small, and the conditions involve a grave disability, it would seem that the total pension should be allowed. If this is the correct view, as intended, section 4 would be amended as follows, commencing at line 1:

That pension granted such widows shall be continued without limit as to age whenever it shall appear that such minor or minors are of unsound mind or physically helpless, so as to render them incapable of earning a subsistence.

Then the proviso, when it relates to the pension, would be in harmony with the balance of section 4.

Section 5 gives a statutory construction of what constitutes dependence in the case of dependent parents. The difference, when compared with former statutes, is more apparent than real; that is, this section provides that, when a dependent parent is dependent upon his or her own manual labor, or the contribution of others not legally bound for his or her support, it shall be construed as a condition of dependence. Fifteen years ago this might have been regarded as a considerable departure, while at the present time it makes but very little difference as to actual title, but waives what are now essential requirements in proof required. The parents of soldiers are now very generally well advanced in years, precluding, in a large majority of cases, their ability to earn their own living by manual labor. For many years the condition of dependence in the case of a mother has been assumed, when she had no income except that which she may have been able to derive from the proceeds of her own manual labor.

The proposed measure unquestionably relieves this class of applicants from furnishing a considerable amount of proof relating to the date of the soldier's death, which, in many cases, they are (though often after much trouble) able to secure, but in many of the most meritorious they are unable to find. The number who would receive pension which would otherwise be denied would amount to several hundred and reach for a few years about per year, but it is a very rapidly diminishing class.

This section also provides, as in the case of widows, that the pension shall be increased from $8 to $12 per month. The number now on the rolls, which is rapidly decreasing, who would be benefited is, in round numbers, 27,000, and the annual increase in cost if the pension was increased to $12 per month would be about $1,300,000. Of the pending claims which will probably be allowed the maximum number may be stated at 10,400, and the annual increase in their pension would be about $500,000.

Section 6 waives the present requirement in pension claims, where it appears by record evidence that the applicant was regularly enlisted and mustered, that he shall furnish evidence that he was free from the alleged disability before his entering the service, and presumes that, under these conditions, he shall have been in good health at such enlistment. It raises the *prima facie* case in favor of the claimant, and puts the *onus probandi* upon the Government to show unsoundness at enlistment.

This provision will save the claimant from furnishing a considerable amount of testimony which sometimes it may be difficult for them to obtain. It is rare that a claim is defeated by failure to meet this requirement of the office whenever it shall be otherwise completed, and has heretofore been as often proffered by claimants as demanded by the office.

Very respectfully,

W. W. DUDLEY,
Commissioner of Pensions.

Hon. S. M. CULLOM,
United States Senate.

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48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 108.

IN THE SENATE OF THE UNITED STATES.

JUNE 16, 1884.—Referred to the Committee on Rules and ordered to be printed.

RESOLUTION

IN RELATION TO THE

BARTHOLDI STATUE OF "LIBERTY ENLIGHTENING THE WORLD."

FORTY-EIGHTH CONGRESS, FIRST SESSION.

CONGRESS OF THE UNITED STATES,
IN THE HOUSE OF REPRESENTATIVES,
June 13, 1884.

Resolved by the House of Representatives (*the Senate concurring*), That permission be, and is hereby, granted to the committee of which William M. Evarts is chairman, having in charge the erection of the Bartholdi statue of "Liberty Enlightening the World," on Bedloe's Island, in the harbor of New York, to exhibit in the Capitol, under the direction and subject to the control of the Architect, a model of the pedestal now in process of construction: *Provided*, That the said model shall not occupy a floor-space of more than ten feet square, and shall be removed without expense to the Government whenever required by the Architect of the Capitol.

Attest:

JNO. B. CLARK, JR.,
Clerk,
By T. O. TOWLES,
Chief Clerk.

CONGRESS, } SENATE. { MIS. DOC
t Session. } { No. 109.

IN THE SENATE OF THE UNITED STATES.

JUNE 16, 1884.—Ordered to be printed.

Mr. VAN WYCK submitted the following

RESOLUTION:

olved, That the Committee on the Judiciary be directed to inquire
her the Union or Central Pacific Railroad Companies have become
nsible for or guaranteed the interest on any bonds other than those
ically authorized by Congress, or outstanding at the date of the
ge of the "Act making appropriations for the legislative, execu-
and judicial expenses of the Government for the year ending June
374, and for other purposes," approved March 3, 1873, and if so to
extent, and under what actual or alleged authority.
o, whether any new stock has been issued by either of said com-
s in violation of said act.

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 111.

REPORT

IN REGARD TO

THE PROPOSED IMPROVEMENT OF THE HARBOR OF GALVESTON, TEXAS.

Prepared by JOSEPH NIMMO, JR., *Chief of Bureau of Statistics.*

IN REPLY TO AN ORDER OF THE SECRETARY OF THE TREASURY, DATED MAY 27, 1884.

JUNE 19, 1884.—Presented by Mr. Coke, from the Committee on Commerce, ordered to be printed and recommitted to the Committee on Commerce.

CONTENTS.

1.—The lack of good harbors on the Gulf of Mexico, and especially on the coast of Texas.
2.—The growth of Texas; some facts in its history; increase of population; acreage of land under cultivation, production of cotton, cattle, wool, cereals, lumber, and increase of wealth.
3.—Railroads; with evidence of officers as to the probable results of improvement of the harbor of Galveston.
4.—The extent of territory the interests of which would be promoted by the improvement of Galveston Harbor, including a short dissertation on Mexican commerce.
5.—Some facts in regard to the trade of Galveston which tend to illustrate the need of the proposed improvement of the harbor of that city.
6.—The benefits which the improvement of the harbor of Galveston would, through competition, confer upon the commercial and industrial interests of the country.
7.—Effects of the proposed improvement upon other cities.
8.—Recapitulation of facts and deductions.
9.—Conclusion.

WASHINGTON, D. C., *June* 18, 1884.

SIR: In compliance with your order of the 27th ultimo, I have the honor to report as follows in regard to the importance of such improvement of the entrance to the harbor of Galveston as will enable sea-going vessels of the largest class to enter that port. At the present time vessels drawing more than 13½ feet of water are unable to enter at Galveston or at any other port on our Gulf coast from the mouth of the Mississippi to the mouth of the Rio Grande. It is proposed to construct across the bar at the entrance to that harbor a channel having a depth

of 30 feet, at a cost of about $7,500,000. The character of the work to be done, and its cost mark it as a heroic enterprise. It is the object of this report to consider the question as to whether the Government of the United States would be justified in undertaking such a work, upon the ground of its national importance, and also as to whether the proposed expenditure is warranted by the magnitude of the agricultural, commercial, industrial, and transportation interests which would be subserved by such improvement and by the extent to which these interests would be advantagedby the construction of the proposed work.

In considering this somewhat broad subject, I shall first advert to

THE NEED OF GOOD HARBORS ON THE GULF COAST OF THE UNITED STATES, AS ILLUSTRATED BY THE DISTRIBUTION OF THE NATURAL HARBOR FACILITIES OF THE UNITED STATES ALONG OUR ATLANTIC AND GULF COASTS.

The sea coast of the United States, north of Cape Henry, at the entrance to Chesapeake Bay, is abundantly supplied by nature with deep and commodious harbors, but south of that point there are but few good harbors. This fact may be more clearly illustrated by assuming harbors which admit vessels drawing 26 feet at mean high water to be first-class harbors, those admitting vessels drawing 20 and less than 26 feet to be second-class harbors, and those admitting vessels drawing less than 20 feet to be harbors of the third class.* Upon this assumption there are on the Atlantic coast of the United States, north of Cape Henry, and more particularly on the New England coast north of Boston, many harbors both of the first and second class, but on our Atlantic coast south of Cape Henry there is only one of the first class, viz, Port Royal in South Carolina, and only seven of the second class. West of the Tortugas Islands there is upon our Gulf coast but one harbor of the first class, namely, the harbor formed by the Mississippi River, and but two of the second class, viz, Tampa and Pensacola. Galveston harbor is of the third class. Prior to the improvement of the mouth of the Mississippi by means of jetties, a work accomplished at the expense of the United States Government, the Mississippi River afforded only the advantages of a third-class harbor. A part of the available wharfage space at Pensacola for vessels drawing over 15 feet is occupied by the United States for military purposes, and Tampa is far out of the line of the great internal commercial movements of the country.

The harbors of Key West and Tortugas at the entrance to the Gulf

*The official description of harbors, as stated by Capt. C. O. Boutelle, assistant in charge of office of the United States Coast and Geodetic Survey, is as follows: I. "Harbors of the first class are those which will admit vessels drawing 26 feet and under at mean high water." II. "Harbors of the second class are those which will admit vessels drawing 20 feet and under at mean high water. All other ports may be considered as of the third class."

xico are formed by small islands and coral reefs. They admit ves-
f the greatest draught and are of great value in a military point of
They are excellent harbors of refuge and naval rendezvous; but
Tampa they are far out of the range of the great internal trans-
tion lines of the country.
bay of Mobile admits vessels drawing 20 feet; but the harbor
bile admits only vessels drawing not more than 17 feet of water.
ound Chesapeake Bay there are many more good harbors than on
ntire Atlantic and Gulf coasts south of Cape Henry. The little
l of Mount Desert on the coast of Maine has much better and more
sive natural harbor facilities than exist on our entire Gulf coast
of the Tortugas.
wide intervals between the ports south of Cape Henry and their
arative inferiority rendered the South Atlantic and Gulf coasts easy
fense during the late war, and also easy to blockade.
length of the coast line of the United States from Eastport, Me.,
pe Henry is 742 nautical miles; from Cape Henry to Cape Sable,
la, 1,073 nautical miles, and from Cape Sable to the mouth of the
Grande River, 1,415 miles. (See Inclosure F.)
m the mouth of the Mississippi River to the mouth of the Rio
de River—a distance about equal to the length of sea-coast line
Maine to Norfolk, Va.—there is not a single harbor either of the
or of the second class.
harbor of Galveston, having a depth at its entrance at the pres-
me of only 14 feet (see Inclosure T) is the best harbor on our entire
coast from the mouth of the Mississippi to the Rio Grande. It it also
ed to be the one most susceptible to such improvements as would
itute it a harbor of the first class. Its superiority to all the other
of Texas is clearly indicated by the Coast Survey charts, and
e fact that the principal railroads of that State extend to Gal-
n or connect with railroads terminating at that point. This supe-
y is also indicated by the fact that the value of the exports of do-
c merchandise from the port of Galveston during the year ended
30, 1883, was $29,627,898, as against $957,639 at all the other ports
xas by sea, and the value of imports of merchandise at Galveston
g that year was $1,511,712, as against $735,677 by sea at all the
ports of the State.
great lakes were no better supplied by nature with good harbors
was the Gulf coast of the United States. But by the construction
akwaters or jetties at the mouths of certain small rivers, and the
ning of such rivers, about forty harbors have been constructed,
meet the requirements of commerce on the lakes. In this man-
lequate harbor facilities have been supplied at Oswego, at Buffalo,
veland, at Chicago, at Racine, at Erie, and at Milwaukee. The
amount which had been expended for the improvements of rivers

and harbors on the lakes up to the close of the fiscal year ended June 30, 1873, was $10,437,158. No later date is immediately available.

In its present condition the harbor of Galveston is greatly inferior to that of New Orleans prior to the improvement of the mouth of the Mississippi River by means of jetties. Then vessels drawing about 18 feet could enter at that point as against only 13½ feet at Galveston. During the prevalence of easterly storms, to which the coast of Texas is subject, the waves break on the bar at Galveston harbor, rendering it unsafe for vessels to attempt the passage at such times.

THE GROWTH OF TEXAS, AND SOME FACTS IN ITS HISTORY.

Texas was admitted into the Union as a State on the 29th of December, 1845. Its area is 262,290 square miles, and is equal to that of the New England States, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, and North Carolina combined.

By the terms of the joint resolution of Congress approved March 1, 1845, for the annexation of Texas to the United States, it was stipulated that new States, not exceeding four in number, in addition to the State of Texas, and having a sufficient population, might, after the annexation of that State, be formed out of the territory embraced within its borders. This stipulation was prompted by the exigencies of political issues which for many years disturbed the peace of the country, but which, in the progress of events, have no longer any political significance. At the present time the pride of vast territorial proportions, and a prevailing sentiment in favor of State unity, appear to be paramount to any disposition within the State looking to that subdivision of its territory which was a cherished expedient throughout the South at the time of the annexation of Texas.

By the terms of its annexation to the United States, Texas retained the ownership and control of its public lands. In disposing of such lands, a liberal policy has been pursued in the encouragement of immigration and in the promotion of railroad construction designed to develop the natural resources of the State and to place it in direct commercial communication with the other States and sections of the Union.

POPULATION.

The population of Texas at the time of its admission into the Union in 1845, and at each decennial year since, is shown as follows:

	Population.
1845 (estimated)	170,000
1850 (census)	212,592
1860 (census)	604,215
1870 (census)	818,579
1880 (census)	1,591,749
1884 (estimated)	2,150,000

ACREAGE OF LAND UNDER CULTIVATION.

The increase in the number of acres of land in farms in the State of Texas is shown as follows:

Improved land in farms.

	Acres.
)	643,976
)	2,650,781
)	2,964,836
)	12,650,314
4 (estimated)	17,000,000

AGRICULTURE.

The following statement exhibits, in the order of magnitude, the value the products of agriculture of the State of Texas, including also lumber and shingles, during the year ending August 31, 1883, and is from the st available information:

. Cotton, 1,193,400 bales	*$58,000,000
. Grain and hay	*48,032,263
. Cattle (including the drive), 703,642 head	†16,346,980
. Lumber and shingles	†9,226,413
. Wool, 22,780,230 pounds	†4,100,441
. Horses, 88,906 head	‡3,455,788
. Cotton-seed, cotton-seed cake and oil	†3,428,516
. Hides, 13,312,746 pounds	†1,464,402
. Sugar and molasses	†642,210
Miscellaneous products	†2,876,419
Total	$119,906,296

The products of agriculture in Texas which constitute the chief articles of exportation beyond the borders of the State are, in the order of magnitude, cotton, cattle, and products of cattle, and sheep and products of sheep—chiefly wool. The trade in these as well as in other products of agriculture constitute a large and growing commerce.

Texas stands first among the States of the Union in the value of cattle and of sheep on farms, and also in the value of its cotton crop. These facts are clearly indicated in Inclosures H, I, and J.

The total value of the cattle of Texas in 1884, including milch cows, as stated by the Department of Agriculture at $91,256,301; the total value of sheep at $17,822,056, and the value of the cotton crop of 1883 at about $58,000,000.

*Furnished by J. R. Dodge, statistician Department of Agriculture.
†Galveston Daily News, September 1, 1883. ‡Estimated.

COTTON PRODUCTION.

The growth of the production of cotton in Texas is shown as follows for the census years 1849, 1859, 1869, and 1879, and for the years 1882 and 1883:

	No. of bales.
1849	58,072
1859	431,463
1869	350,628
1879	805,284
1882	1,326,000
1883	1,193,400

On account of the great value of cotton in proportion to its weight, it can bear the burden of transportation charges better than can almost any other product of agriculture in the United States. The result of this is, that in the order of magnitude, Galveston is the second cotton-receiving and shipping port in the United States, notwithstanding the great disadvantage under which it labors with respect to the depth of water at the entrance to its harbor. (See Inclosure M.)

THE PRODUCTION OF CEREALS.

The State of Texas has an immense area susceptible to the cultivation of wheat, corn, rye, oats, and barley. The average yield of wheat, in the counties in which it is produced, is believed to be fully equal to that of our Western and Northwestern States. The cereal crop of Texas matures about two weeks earlier than in the States north of the Ohio and Missouri Rivers.

The production of cereals in Texas for exportation beyond the borders of the State is, however, restricted by the great cost of its transportation to foreign markets, the principal cause of which is the fact that ships of the larger class, in which grain is usually and most economically transported upon the ocean, are unable to enter the harbor of Galveston. If such vessels should engage in this trade at that port, they would be obliged to lie in the Gulf outside the bar and to load by means of lighters. This is done to a considerable extent in the shipment of cotton; but the expense of such a mode of loading is an effectual barrier to a large grain trade at Galveston, and consequently limits the production of cereals almost entirely to the demand within the State of Texas. Attention is invited to Inclosure K, a statement in regard to the cereal production of Texas, by Mr. J. R. Dodge, Statistician of the Department of Agriculture.

THE PINERIES OF TEXAS.

The area of the pine lands of Texas is about 32,300 square miles, which is about the area of the State of Indiana. It would be difficult to estimate the value of such an enormous supply of lumber and of timber upon the development of a State like Texas, which has vast areas of untimbered prairie lands.

WEALTH.

The assessed value of real estate and personal property in Texas was, in 1883, $527,537,390.

It is stated, however, upon reliable authority that the assessed valuation is only about 50 per cent. of the actual valuation. Allowing for this difference and for the increase in the value of property during the last year, it is believed that the total value of property in the State of Texas is at the present time not far from $1,000,000,000.

RAILROADS.

The State of Texas is dependent almost entirely upon railroads for the means of internal transportation. Her rivers are not navigable except for lighters and vessels of the smallest size. The increase of the railroad mileage of the State affords, therefore, a measure of her commercial growth. In the year 1850 there was not a mile of railroad in the State. The increase of railroad mileage since 1860 is shown as follows:

	Railroad mileage.
1860	307
1870	711
1880	3,257
1884	6,166

The State of Texas now stands sixth in the order of magnitude of railroad mileage among the States of the Union. (See Inclosure L.)

The number of miles of railroad in Texas under each separate corporate ownership and control is shown as follows:

Number of miles of railroads in the State of Texas.

		Miles.
Missouri Pacific, or Gould system	standard gauge, 4.8½	2,644
Southern Pacific system	do	1,956
Gulf, Colorado, and Santa Fé system	do	536
Texas and Saint Louis Railway	narrow gauge	305
Texas and Mexican Railway	do	176
Austin and Northwestern Railroad	do	60
Texas and Western Railway	do	57
Houston, East and West Texas Railway	do	135
Fort Worth and Denver City Railway	standard gauge, 4.8½	114
New York, Texas and Mexican Railway	do	92
Texas Trunk Railroad	do	35
Rio Grande and Pecos	narrow gauge	26
Rio Grande Railroad	do	22
Atchison, Topeka, and Santa Fé Railway		8
Total		6,166

The rapid growth of Texas in population and all other evidences of material prosperity has been mainly the result of the construction of railroads.

The actual value of the railroad properties of Texas is about

$160,000,000. This large expenditure of private capital in supplying the means of internal transportation in Texas expresses faith in the resources of that State, and emphasizes the importance of securing for it a first-class seaport. Such expenditure stands also as the strongest indorsement of any practicable plan for the accomplishment of that object. The proposed improvement of the entrance to the port of Galveston would constitute a connecting link between this great system of internal transportation and the ocean, nature's great free highway of commerce. Besides the advantages which would accrue to the railroad system of the State from such an improvement, it would also subserve the railroad interests of other States and Territories from the Mississippi River to the Pacific coast. It has been thought that the nature and extent of such advantages to railroad interests could best be expressed by persons interested in, and competent to speak for, the principal railroad organizations of Texas, and of the adjoining States and Territories. Accordingly, officers of the Missouri Pacific, or Gould system; of the Southern Pacific, or Huntington system, and of the Gulf, Colorado and Santa Fé Railway Company have been requested to give their opinions upon the subject.

The reply of the Missouri Pacific Railway Company is forwarded herewith as Inclosure A, the same being a letter addressed to the chief of this bureau by Capt. R. W. Meade, of the United States Navy, now connected with the management of the affairs of that company. In the opinion of Captain Meade, such improvement at the harbor of Galveston as would admit the entrance of vessels of the largest class would be of very great importance to the entire Missouri Pacific Railway system, both with respect to its freight traffic and to the transportation of immigrants.

The aggregate mileage of the Missouri system is 6,029 miles, and it embraces in Texas alone 2,644 miles of road. Captain Meade states that the harbor of Galveston is the only one of any account on the coast of Texas, and that the coast at this point is one of the safest of approach. He also states, in a letter dated June 11, that in his belief the port of Galveston would, if improved, in time become an important port for the exportation of cotton from Arkansas, of ores and grain from Southern Kansas and California, and of ores from Arizona, New Mexico, and the Mexican States of Sonora, Chihuahua, and Coahuila. He also expresses his belief that upon the completion of the improvement of the harbor of Galveston there would be a large increase of trade between that port and the countries of Europe, and that immigration from Europe to Texas, Arkansas, and the southern portions of Missouri and Kansas, would be diverted to that route.

Mr. C. P. Huntington, vice-president and general agent of the Central Pacific Railroad and leased lines, embracing the Southern Pacific line from San Francisco to El Paso, Texas, and the Galveston, Harrisburgh, and San Antonio Railway system, extending from El Paso to Galveston and

to New Orleans, expresses very decided views in regard to advantages which will be afforded by the proposed harbor improvement at Galveston (see Inclosure B). Mr. Huntington's statement was made to this office under date of August 27, 1883. He states that the improvement of the entrance to Galveston Harbor would shorten the rail distance from the Pacific coast to tide-water on the Gulf of Mexico 300 miles, or 15 to 20 per cent., and that the advantage of the proposed improvement of the harbor of Galveston would be felt over the line of the Southern Pacific Railroad to California, a distance of 2,200 miles.

Col. W. L. Moody and Mr. Walter Gresham, directors of the Gulf, Colorado, and Santa Fé Railway Company, have, under date of June 13, presented a statement, showing very clearly the advantages which would accrue to their lines, embracing 534 miles of completed road in Texas. This company is now before Congress asking the right of way through the Indian Territory, with a view to the extension of its line into Kansas. They have also a line in contemplation which will extend to Colorado. These gentlemen state that in their opinion the traffic of their system of roads would almost immediately be doubled by securing the proposed depth of 30 feet of water at the entrance to the harbor of Galveston, and that the agricultural and industrial interests of all parts of Texas, reached by their lines would thereby be greatly promoted. Their statement is transmitted herewith (see Inclosure C).

The three gentlemen whose opinions have just been stated speak for 5,136 miles of railroad in the State of Texas, or 83 per cent. of the total railroad mileage of the State, and, besides, for nearly 5,000 miles of railroad beyond the borders of the State.

THE EXTENT OF TERRITORY THE INTERESTS OF WHICH WOULD BE PROMOTED BY THE IMPROVEMENT OF GALVESTON HARBOR.

The territorial limits of the commerce of Galveston are at the present time an undeveloped possibility. This is largely due to the sparseness of the population of Texas in proportion to its vast territorial extent, as well as to the fact that the depth of water at the entrance to its harbor affords the maritime advantages of only a third-class port. If the proposed depth of 30 feet at the entrance to the port of Galveston could be secured that port would become the nearest and most accessible first-class sea-port for the States of Texas, Kansas, and Colorado, the Indian Territory, the Territories of New Mexico and Arizona, and parts of the States and Territories adjoining those just mentioned. This is clearly proved by the testimony of the railroad officers whose opinions have just been presented in regard to the effects of the proposed improvement of the harbor of Galveston upon the railroad interests which they represent, and upon the commercial and agricultural interests with which their traffic interests are connected.

In view of the great importance of this matter, a letter was also addressed to Mr. William H. Miller, secretary and treasurer of the Kansas

City Board of Trade, inquiring as to the advantages which would be afforded to Kansas City, the State of Kansas, and Western Missouri by the improvement referred to. Mr. Miller has for several years been employed in the capacity of an expert by this office in connection with the internal commerce branch of its work, and the chief of this Bureau entertains a high opinion of his knowledge of those matters of a commercial nature which for years have been the subject of his observation and study, and also of his judgment in regard to questions arising in relation thereto.

In his letter, transmitted herewith as Inclosure D, Mr. Miller expresses a very decided opinion as to the great advantage which the proposed improvement of Galveston Harbor would confer upon the commercial interests of Kansas City, and also upon the productive interests of Texas, Western Louisiana, Arkansas, Missouri, Western Iowa, Nebraska, Kansas, Colorado, and New Mexico. He states that the rail distance from Kansas City to Galveston is 600 miles less than to ports on the Atlantic seaboard, and that the grain and packing-house products shipped from Kansas City would supply a large demand for ballast freights of cotton-carrying vessels, thus securing an advantage with respect to the rates on grain and provisions not supplied at Atlantic ports.

It is usual to regard one mile of rail carriage as the equivalent of about four miles of transportation by sea. Upon this assumption the equated rail distances from Kansas City to Liverpool via New York and via Galveston would be about equal.

It may be remarked also in this connection that the central portions of the State of Kansas are about equidistant from Chicago and Galveston.

Mr. Miller states that not only would the rates via Galveston exert a strong regulative influence over all rates by rail from Kansas City to the Atlantic seaboard, but also that a very considerable reciprocal trade would spring up by that route between Kansas City and Europe, the West India Islands, Mexico, and South America.

COMPARATIVE EXTENT AND IMPORTANCE OF THE AREA OF COUNTRY WHICH MAY BE SUBSERVED BY THE PORT OF GALVESTON.

The entire territory of which Galveston would become the nearest and most accessible first-class seaport, namely, the States of Texas, Kansas, and Colorado, the Indian Territory, and the Territories of New Mexico and Arizona, with parts of contiguous States and Territories, has an area of about 797,000 square miles. This is equal to the aggregate area of the New England States, New York, New Jersey, Pennsylvania, Maryland, Delaware, Virginia, Ohio, Indiana, Illinois, Michigan, Wisconsin, North Carolina, Kentucky, Tennessee, Iowa, Minnesota, Nebraska, the aggregate population of which States in the year 1880, was 35,756,780 as against a population of only about 3,000,000 within the area referred to, as being embraced within the range of the

commercial enterprise of Galveston, under the favoring condition of a first-class harbor.

The area of which Galveston would thus become the nearest and most accessible seaport is also equal to the aggregate area of Great Britain and Ireland, France, Spain, Italy, and the German Empire, the total population of which countries is about 163,000,000, and is fully equal to those countries in the extent of land susceptible to culture, in fertility of soil, and in all the capabilities of material prosperity. Attention is invited to Inclosure E, the same being statements furnished to this office by the Chief Signal Officer of the United States Army, showing the mean annual precipitation throughout the area mentioned as being naturally tributary to the commerce of Galveston. The comparison as to rainfall in this area and in the countries of Europe above referred to is quite favorable to the former. These facts suggest the possibility of an enormous increase of wealth and of population within this area described as being within the range of the commercial activities of Galveston. Evidently the present development of the resources of the State of Texas and of its neighboring States and Territories are to the possibilities of such development but as a beginning. The proposed improvement of Galveston harbor has therefore a prospective importance vastly exceeding its value to interests which would thereby be subserved at the present time.

MEXICAN COMMERCE.

The need of a first class sea port in Texas has been greatly increased by the recent extension of railroads from the United States into Mexico. The completion of the Mexican National and of the Mexican International Railroad lines will connect the chief centers of trade and industry in Mexico with the Texas railroad system, which, as already stated, depends chiefly upon the harbor of Galveston for the facilities of ocean commerce.

In a recent report of this office in regard to commerce between the United States and Mexico it was shown that the trade between the two contiguous countries will hereafter be carried on chiefly over railroads. This appears evident from the following considerations: First, nine-tenths of the *population* of Mexico reside on the high table-lands, where are carried on the chief agricultural and mining industries of the country. Second, the hot, unhealthy belt of land along the Gulf Coast (*tierra caliente*) is repellent to foreign commerce. Third, there is no port of Mexico on the Gulf north of Vera Cruz at which vessels can enter when drawing over 10 feet of water, and south of that point there is no harbor at which vessels can enter when drawing over 12 to 15 feet of water. Vessels of 24 feet draught may enter the harbor of Vera Cruz, but at that point are obliged to load and unload by means of lighters while lying half a mile from the shore. (See Inclosure G.)

A full and complete statement upon this subject has been fur-

nished to this office by Lieutenant-Commander George W. Pigman, of the United States Navy, acting hydrographer of the Bureau of Navigation. (See Inclosure C.)

For these reasons it is apparent that upon the completion of the improvement proposed to be made at the entrance to Galveston harbor, and of the railroads in Mexico in course of construction, that port will be the most accessible of all the Gulf ports for the commerce of the central and northern portions of Mexico with countries beyond the sea.

The area in Mexico which will thus be brought within range of the commerce of Galveston is about as large as that of the State of Texas. The magnitude of this probable commercial development is of course a matter which can only be determined by the results of practical experience under the new conditions governing the commercial relations between the United States and Mexico introduced by the construction of railroads.

SOME FACTS IN REGARD TO THE TRADE OF GALVESTON WHICH TEND TO ILLUSTRATE THE NEED OF THE PROPOSED IMPROVEMENT OF THE HARBOR OF THAT CITY.

The need of improving the harbor of Galveston is clearly indicated by the fact that notwithstanding the barrier to commerce imposed by the bar at its entrance, the trade of that city has rapidly increased. The tonnage of vessels entered from foreign countries rose from 31,555 tons in 1870 to 153,614 tons in 1883 (see Inclosure N), and the total value of the foreign commerce of the city increased from $15,382,963 in 1870 to $31,140,759 in 1883. The population of the city also increased from 13,818 in 1870 to 22,248 in 1880. The great need of the improvement here referred to is also clearly indicated by the fact that during the year ended June 30, 1883, there were 15 ships which came to Galveston for cargoes of cotton, and were entirely loaded by means of lighters while lying in the Gulf about 11 miles from the city wharves, and that during the same year there were 186 vessels, loaded in part at the wharves of the city, and in part while lying in the Gulf outside the harbor. These facts in regard to the growth of commerce at Galveston, n the face of a great maritime disability, clearly point to the importance of the geographical position of that port with reference to the commercial needs of the extensive range of country which is naturally tributary to that city.

The importance of the proposed improvement is indicated also by the fact that steamers composing the regular lines plying between Galveston and other ports, namely, the Morgan line, to New Orleans and New York, and the Mallory line, to New York, have been designed and built with special reference to the depth of water on the bar at the entrance to the harbor of Galveston. Vessels of equal tonnage, built according to customary models, have too great a draught of water to engage in the trade of that city except under the disadvantages before alluded to, of

loading while lying outside the harbor. This fact, of course, affords to the steamers built expressly for the Galveston trade a very decided advantage over other steamers, but, at the same time, the disability which gives rise to this advantage debars Galveston from enjoying the important benefits of the competition of the largest ships engaged in maritime commerce. Attention is invited to Inclosures Q, R, and S, which present data of interest in regard to the commerce of Galveston, the relative of its imports and exports, and of the tonnage employed at that port in foreign trade.

THE BENEFITS WHICH THE IMPROVEMENT OF THE HARBOR OF GALVESTON WOULD, THROUGH COMPETITION, CONFER UPON THE COMMERCIAL AND INDUSTRIAL INTERESTS OF THE COUNTRY.

The facts hereinbefore presented appear clearly to prove that if the harbor of Galveston shall be so improved as to admit the entrance of vessels of the largest size, the various railroads connecting that city with Arkansas, Western Missouri, and Western Iowa, Kansas, Nebraska, Colorado, and New Mexico will become active competitors, with railroads extending east, not only with respect to trade with Europe, but also with respect to trade between the area referred to and the chief Atlantic seaports. This is clearly indicated by the testimony of Capt. R. W. Meade, an officer of the Missouri Pacific Railway, and also by that of Mr. Miller, secretary of the Board of Trade of Kansas City. This competition would, in practice, assert itself, not only in the transportation of products of the interior, by way of Galveston, but also, and, perhaps to a greater extent and more beneficially, in the regulating influence which it would exert over the rates charged by all the east and west railroads extending from Colorado to the Atlantic seaboard. The magnitude of the advantages which would thus be afforded to the commercial and industrial interests of the country it is impossible accurately to compute or even approximately to estimate, but the great importance of such advantages is clearly apparent.

The Southern Pacific Railroad would, also, as shown by Mr. C. P. Huntington in a statement made to this office a few months ago, be the better enabled, through such improved harbor facilities at Galveston, to compete for direct traffic between California and New York by rail, and also via the Isthmus of Panama. It would also be the better enabled to engage in the carriage of grain from California to Europe, and thus to compete with vessels pursuing the voyage from San Francisco to Europe by the way of Cape Horn.

In view of the statements hereinbefore presented as to the vast area of country, the commercial and industrial interests of which would be directly subserved by the proposed improvement of the harbor of Galveston, and by the fact that such improvements would also, through competition, directly benefit a very large proportion of the whole coun-

try, it appears proper to characterize that project as a work of great national importance.

At this day, when the problem of regulating commerce among the States by rail presents itself so forcibly to the mind of the national legislator, it appears well, also, to call attention to the fact that the promotion of competition between commercial cities, and between rail lines so far separated and having so many diverse interests that they cannot possibly eliminate the force of competition, supplies an expedient more certain, more constant, and more reliable in its beneficial features than does any conceivable direct administrative measure assertive of the undoubted power of the National Government over rates.

In this view it appears to be a manifest duty of the Government to neglect no practicable and useful measure, the effect of which would be to secure so extensive and important a regulating influence, as that which may be expected to follow such improvement of the harbor of Galveston as will supplement the work of a vast railroad system of transportation and place it in direct communication with the most ample facilities of maritime commerce.

EFFECTS OF THE PROPOSED IMPROVEMENT UPON OTHER CITIES.

One of the direct effects of the proposed improvement of the harbor of Galveston would undoubtedly be to enable that city the more effectually to compete with other cities, and notably with its two sharpest competitors, Saint Louis and New Orleans. But that the advancement of Galveston by the means proposed would prove detrimental to the two other cities just mentioned, is a thought which can hardly be seriously entertained. As well might it be supposed that the prosperity of Philadelphia and of Boston is detrimental to the prosperity of New York. Any expedient which tends to the development of that vast and productive area, in which Saint Louis and New Orleans and Galveston freely compete, must tend to the advancement of the commercial interests of each one of those cities. In this connection attention is invited to a table showing the distances apart of various cities in this country. (See Inclosure O.)

RECAPITULATION OF FACTS AND DEDUCTIONS.

The facts and deductions herein before presented may be recapitulated as follows:

1. There is a great lack of harbor facilities on the Gulf of Mexico, and especially on that portion of the Gulf west of the mouth of the Mississippi River.

2. The harbor of Galveston is believed to be the one most susceptible of such improvement as would constitute it a first-class harbor.

3. The vast resources and the rapid growth of Texas, and of adjoining States and Territories, and the important bearing of the improve-

ment of the harbor of Galveston upon the development of those resources appear to warrant the proposed expenditure.

4. The traffic interests of over 6,000 miles of railroad in Texas, the actual value of which is about $160,000,000, and to a considerable extent the traffic interests of about 5,000 miles of railroad outside of the State of Texas, would be greatly advanced by the construction of the proposed work.

5. The commercial interests of an area as large as Great Britain and Ireland, France, Spain, Italy, and the German Empire, would be greatly promoted by such improvement of the entrance to the harbor of Galveston.

6. The proposed improvement would, through competition, exert an important regulating influence over the rates for transportation across the entire continent, over the rates charged via the Isthmus of Panama and by sea-going vessels engaging in the transportation of grain from California to Europe.

CONCLUSION.

The foregoing facts and considerations appear clearly to prove that the proposed improvement at Galveston Harbor is a work of great national importance. At no time since the annexation of Texas has the condition of national affairs been so favorable as at the present time to the adoption of measures for supplying to the Southern States, and more especially those bordering on the Gulf of Mexico, the greatly needed harbor facilities, and at the same time of adopting a measure the effect of which will be to exercise an important and extensive regulating influence over the internal commerce of the country.

Besides the vast commercial interests which would be promoted by the proposed improvement at Galveston in case the method by jetties, as proposed, should be adopted, such works would in themselves render available a most effective means of harbor defense, viz, the use of torpedoes, or other instruments of warfare, at the entrance to the jetties. In a military point of view the proposed improvement would therefore subserve an important economy.

As the result of a somewhat careful consideration of this whole subject, I hesitate not to express the opinion that the proposed expenditure, if wisely directed, would be abundantly justified by the great public interests which it would subserve.

I am, sir, very respectfully yours,

JOSEPH NIMMO, JR.,
Chief of Bureau.

Hon. CHARLES J. FOLGER,
Secretary of the Treasury.

[Inclosure A.]

Letters addressed to the Chief of the Bureau of Statistics by Capt. R. W. Meade, United States Navy, an officer of the Missouri Pacific or Gould system of railroads.

THE MISSOURI PACIFIC RAILWAY COMPANY,
EXECUTIVE OFFICE,
Saint Louis, Mo., May 26, 1884.

DEAR SIR: Mr. George C. Smith, private secretary to Mr. Hayes, has handed me your telegram to him and requested me to answer it, presuming, I suppose, that my long experience in the Navy may enable me to throw additional light on the advantages of a deep channel into Galveston harbor as an aid to our southwestern railway system.

We have one line only into Galveston, namely, the Galveston, Houston, and Henderson Railway, leased by us for ninety-nine years, but it has terminal facilities not possessed by any rival line.

This road extends 50 miles to Houston, where it joines the Gulf division of the International and Great Northern Railway, and from thence, 151 miles, to Palestine, where it taps the main line and connects with our entire net-work of railways in Texas, made up as it is of the International and Great Northern, the Missouri, Kansas and Texas, and the Texas and Pacific roads, about 2,644 miles in all, or nearly one-third of the entire system comprehended under the generic title of "the Missouri, Pacific Railway Company."

It seems hardly necessary for me to enlarge upon the advantages that must accrue to this system of railways when immigration from Europe to Galveston is made easier by a deep-water channel which will enable the deepest draught steamer to go straight to our terminal wharves.

A change from the depth of 13½ feet to, say, 26 feet, would, it is thought, bring a large part of the German immigration to Texas direct.

When once over the bar, the harbor of Galveston is commodious and well sheltered, the only one, in fact, of any account on this coast. The approach to the coast is easy and safe, and from an experience of 14 months in command of a blockader in 1864-'65, I can say that it is, as to weather and approaches, in all seasons, one of the safest of coasts. The only serious storms are the "northers," which always blow off-shore and give ample notice of their approach, and it is very rarely the case that a West India cyclone reaches as far as the Texas coast, though I had personal experience of a heavy one near Sabine Pass, in 1865.

Direct immigration from Europe to Texas would be of immense advantage in the development of the State, and it is reasonable to suppose our lines would have a fair share of the resulting prosperity.

That our agents are keen to appreciate the situation is evidenced by the care which is taken by them to throw light upon the present condition and astonishing progress of Texas, by means of pamphlets and papers sent out broadcast.

For many of the facts contained therein our thanks are justly due to the efficient Bureau over which you yourself preside, and for which I am glad to know credit is duly given by our agents.

Very truly, yours,

R. W. MEADE.

JOSEPH NIMMO, Jr.,
Chief of Bureau of Statistics,
Treasury Department, Washington, D. C.

THE MISSOURI PACIFIC RAILWAY COMPANY,
EXECUTIVE OFFICE,
Saint Louis, Mo., June 11, 1884.

DEAR SIR: In reply to your telegram of yesterday's date, I would say that it is my opinion, the improvement of the ship channel into Galveston Harbor, besides the benefit that will accrue to Texas, must in a greater or less degree affect the State of Arkansas and the southern portions of Missouri and Kansas by diverting some part of the immigration from Europe to these States over the lines of the Missouri, Kansas and Texas, and Iron Mountain Railways.

Lands are still very cheap in Arkansas and Southern Missouri and comparatively so in Southern Kansas. Fortune is in store for the sober and thrifty immigrant who within the next decade purchases land in these sections of our country, and the tide of immigration once turned via Texas to these States will steadily increase year by year as their resources become better known to the class of people in Europe from which the immigration is drawn.

In addition to this, I believe the port of Galveston would in due time become a great trepôt for the export of cotton, grain, and ores, the first being drawn from the ates of Texas and Arkansas, the second from Southern Kansas and California (short uls), and the last from Arizona, New Mexico, and the Mexican States of Sonora, ihuahua, and Coahuila. Trade will nearly always seek those routes over which eight is reasonably remunerative *both* ways, and I should confidently look for a great crease of trade between the European ports and Galveston with that port once irly opened to deep draught steamships.

Very truly, yours,

R. W. MEADE.

[Inclosure B.]

xtract from a letter addressed to Joseph Nimmo, jr., chief of Bureau of Statistics, by C. P. Huntington, esq., vice president and general agent of the Southern Pacific Railroad.

The question of which will be the natural Gulf port for doing the grain business this company drawn from the country west of the 100th meridian is one depending rtly for its solution upon the efforts of hydraulic engineering. The port of Galvesn has for years had but 12 feet of water at low tide on her outer bar. The Govament works have been so far advanced as to increase that depth to 14 or 15 feet; d it is believed by the engineer in charge that 25 or 26 feet can be secured by a conuance of the works. Judging by the progress heretofore made it would be wiser the General Government to let the work to private parties under contract, letting e payments be contingent upon depth of water obtained. In this way there would less time consumed, and the risk of failure would be upon the contractors themves. Should this hope be realized it will result in making Galveston Bay the best it is also the nearest port for the transaction of this business. Galveston is otherse more accessible from the sea than New Orleans, and the land carriage will thus shortened fully 300 miles, while the water carriage, taking one season with anher, would be virtually the same as to New Orleans. Here then is a saving of out 15 to 20 per cent. in distance, and I conceive that your tables of calculations, they are to have anything more than an ephemeral interest, should be based upon listance of, say, an average of 2,000 miles from the wheat field to the nearest Texas rt of shipment, rather than 2,495 miles, which you have invariably adopted for comrison.

[Inclosure C.]

tter addressed to the chief of the Bureau of Statistics by Col. W. L. Moody and Mr. Walker Gresham, directors of the Gulf, Colorado and Santa Fé Railroad, in regard to the advantages which the improvement of Galveston Harbor would confer upon the interests of their line.

WASHINGTON CITY, D. C., *June* 13, 1884.

DEAR SIR: We have the honor to acknowledge the receipt of your favor of June 3, 84. You request us, as directors in the Gulf, Colorado and Santa Fé Railroad sysm, to give our opinion on the advantages likely to accrue to said system by the imovement of the Galveston Harbor, so as to admit vessels of the largest draught. Also inform you as to the character of the traffic of this road and the manner in which ch traffic is related to ocean commerce.

We beg to reply that this system at present operates a line from Galveston to Fort orth, 345 miles; from Temple to Lampasas, 56 miles; from Cleburne to Dallas, 53 les; from Somerville via Navasota to Montgomery, 56 miles; and from Alvin to Hous, 24 miles; making a total of 534 miles of completed road. The money is subscribed d it is proposed at once to extend the main line and branches 200 miles.

The system is owned chiefly and is controlled by the citizens of Galveston, where e main office is. To what extent it would be benefited by such improvement of e Galveston Harbor as indicated by you, it would be impossible to estimate. Every ch of increased depth of water would necessarily benefit the system. To admit vesls of the largest class would be to benefit the system beyond measure.

At present, there being only 13 feet of water at mean low tide on the Galveston r, the bulk of the products of our own State (Texas) are diverted to ports and arkets other than Galveston.

The export traffic of this road consists chiefly of cotton, hides, wool, hay and grain, ve stock, and cotton seed. The reduction in ocean rates of freight, which would sult from the suggested improvement of Galveston Harbor, we think it safe to say,

would enable our road to control for export over its line at least 50 per cent. increase of the products of the State otherwise diverted. Of course the imports would be immeasurably increased and our system correspondingly benefited.

This reduction would also stimulate industry, and every product would rapidly increase. Take wheat alone, the production of which at present is limited to but little more than local consumption. Deep water at Galveston would at once so reduce the cost of handling that millions of bushels would pass over this road, raised all along its lines, to say nothing of the unlimited supply from Kansas, Colorado, and other States whose nearest ocean outlet would be at Galveston.

The Gulf, Colorado and Santa Fé Railroad at present penetrates the finest cotton and grain growing counties in the State; in fertility of soil equal to any in the world. It also reaches the sugar lands and pastoral regions of the West. It is proposed to extend its main line from Lampasas in a northwesterly direction toward Santa Fé, in New Mexico, and its branches from Fort Worth north through the Indian Territory, and from Dallas in a northeasterly direction, thus securing outlets and connecting with the vast systems of railroads throughout the country.

Contemplating the wonderfully rapid development of our own State and the States and Territories north and northwest of us, who can measure the advantages certain to accrue to every railway system in Texas by the improvement of the Galveston harbor, so as to admit vessels of the largest draught?

With great respect, we are, yours, truly,

W. L. MOODY,
WALTER GRESHAM,
Directors in Gulf, Colorado and Santa Fé Railroad Company.

Hon. JOSEPH NIMMO, JR.,
Chief of Bureau.

[Inclosure D.]

Letter addressed to the Chief of the Bureau of Statistics by Mr. William H. Miller, secretary and treasurer of the Kansas City Board of Trade, in regard to the benefits which would be conferred upon Kansas City and contiguous territory by the proposed improvement at the entrance to Galveston Harbor.

(Board of Trade, office of the secretary and treasurer. J. S. Chick, president; W. H. Miller, secretary and treasurer.)

KANSAS CITY, MO., *June* 9, 1884.

DEAR SIR: Your telegram and letter asking the effect the deepening of Galveston Harbor would have upon the commerce of Kansas City and the material interest of Kansas have been received.

In reply I would say that no improvement that could be made by the Government would in my judgment be so beneficial, except, perhaps, the improvement of the Mississippi and Missouri Rivers. The distance by rail from Kansas City to Galveston is about 600 miles less than to the Atlantic ports, and the movement of our cereal and packing-house products in that direction would command correspondingly lower rates, which would be of very great benefit. The inadequacy of Galveston Harbor for large vessels is now, it is believed, the chief impediment to such a movement. Much of the grain and packing-house products moved from Kansas City go to seaboard markets for export, and if it could find such a market 600 miles nearer than those at present sought, it would inevitably seek it. Besides this fact, our products are needed at Galveston for ballast for cotton-carrying vessels, which not being the case at Atlantic ports would secure us ocean rates so far reduced from a mileage pro rata as to overcome the difference in distance of ocean transit to all European ports. The same considerations apply equally to the importation of salt and other heavy articles. The improvement of this harbor would therefore establish a new outlet for this port of the West, which would from the first exert a regulative influence upon rates to Atlantic ports, and which would probably soon become a favorite one for all our commerce with Europe, the West Indies, Mexico, and South America; and its effects would be felt not only in Texas and Western Louisiana, but in Arkansas, Missouri, Western Iowa, Nebraska, Kansas, Colorado, and New Mexico.

As early as 1874 the people of Kansas City and Galveston attempted to establish a commercial interchange which would direct the movement of our cereal and pork-product exports and our heavy imports into that channel. Our railroad connections had then just been effected, and that part of the road south of Corsicana was of broad-gauge, which required the breaking of bulk. Besides this, the immigration into Texas at that time was so great that the Missouri, Kansas and Texas Railroad was burdened to its fullest capacity southward, and hauled its cars north empty,

which embarrassed the movement of trade toward Galveston, and made rates high. Still, an elevator was built at Galveston, and considerable business was done, until it was found that the condition of the harbor was an impediment that only the proposed improvement could overcome. The effort since has been to overcome that impediment, and so soon as it is done this will become the great route for all our intercourse with the West Indies and South America, largely so for Mexico, and a most potent regulative competition for all our intercourse with Europe and the coast cities of our Gulf States.

The people of Kansas City and Galveston are ready and prepared for the interchange; the railroad facilities between us now are adequate, and with the completion of railway extensions now in course of construction or proposed, all the country above mentioned will soon be intimately connected with Galveston and prepared for its full benefit. The lines of trade that would be benefited include all that we send abroad or receive from abroad, but especially the export of cereal and packing-house products and the importation of the products of Mexico, South America, the West Indies, and the Gulf States of our own country.

Very respectfully,

W. H. MILLER,
Secretary.

Hon. JOSEPH NIMMO, Jr.,
Chief of Bureau of Statistics,
Washington, D. C.

[Inclosure E.]

WAR DEPARTMENT,
OFFICE OF THE CHIEF SIGNAL OFFICER,
Washington City, June 6, 1884.

SIR: Referring to your communication of the 31st ultimo, I have the honor to inclose herewith extract from the records of this office.

I am, very respectfully, your obedient servant,

W. B. HAZEN,
Brig. and Brt. Maj. Gen. Chief Signal Officer, U. S. A.

Mr. JOSEPH NIMMO, Jr.,
Chief of Bureau of Statistics, Treasury Department.

Statement showing the mean monthly and mean annual precipitation in inches and hundredths, at the below-named stations of the Signal Service, United States Army, compiled from the commencement of observations, from the records on file at the Office of the Chief Signal Officer of the Army, to December, 1883, inclusive, except at stations closed prior to the latter date.

Stations.	Established.	Discontinued.	Average precipitation.					
			January.	February.	March.	April.	May.	June.
Fort Gibson, Ind. T	Apr. 1, 1873	April, 1882	2.19	2.18	2.80	4.28	4.68	4.56
Fort Sill, Ind. T	June 23, 1875		1.18	1.87	1.35	2.44	5.03	5.02
Dodge City, Kans	Sept. 15, 1874		0.28	0.58	0.70	1.25	4.33	2.55
Leavenworth, Kans	May 21, 1871		1.35	1.60	2.39	3.56	5.07	5.89
Colorado Springs, Colo	Jan. —, 1874	July, 1876	0.14	0.43	0.75	1.46	3.59	1.30
Denver, Colo	Nov. 19, 1871		0.69	0.43	0.86	1.71	3.05	1.60
West Las Animas, Colo	Oct. 1, 1881		0.14	0.27	0.12	0.96	3.28	2.56
Fort Apache, Ariz	Oct. 9, 1877		1.41	1.72	1.28	0.65	0.43	0.96
Phœnix, Ariz	May 9, 1877		0.62	0.78	0.64	0.37	0.09	0.12
Prescott, Ariz	Nov. 19, 1873		1.19	0.81	0.90	0.82	0.46	0.15
Tucson, Ariz	Dec. 2, 1875	June 15, 1883	0.80	0.91	0.93	0.23	0.10	0.28
Yuma, Ariz	Nov. 18, 1873		0.43	0.52	0.08	0.09	0.01	0.01
La Mesilla, N. Mex	June 16, 1876	Aug. 6, 1882	0.42	0.57	0.41	0.15	0.65	0.44
Santa Fé, N. Mex	Nov. 20, 1871	June 15, 1883	0.52	0.64	0.51	0.57	1.85	1.14
Silver City, N. Mex	May 15, 1878	Mar. 31, 1883	1.42	1.08	0.90	0.22	0.48	0.69

Statement showing the mean monthly and mean annual precipitation in inches and hundredths, at the below-named stations of the Signal Service, &c.—Continued.

Stations.	Established.	Discontinued.	July.	August.	September.	October.	November.	December.	Annual.
Fort Gibson, Ind. T	Apr. 1, 1873	April, 1882	3.88	2.37	2.84	2.80	2.83	2.46	37.93
Fort Sill, Ind. T	June 23, 1875		3.66	2.50	2.78	2.17	1.93	2.12	33.38
Dodge City, Kans	Sept. 15, 1874		3.06	3.30	1.16	1.33	0.64	0.68	20.09
Leavenworth, Kans	May 21, 1871		4.79	3.20	3.10	3.36	2.57	1.74	38.49
Colorado Springs, Colo	Jan. —, 1874	July, 1876	2.75	1.65	2.80	0.16	0.77	0.22	16.95
Denver, Colo	Nov. 19, 1871		1.89	1.54	0.96	0.79	0.72	0.71	14.98
West Las Animas	Oct. 1, 1881		1.18	1.27	0.68	0.47	0.11	0.88	11.13
Fort Apache, Ariz	Oct. 9, 1877		5.13	4.89	1.82	1.85	1.00	1.71	22.75
Phœnix, Ariz	May 9, 1877		1.09	1.02	0.71	0.15	0.52	1.08	7.50
Prescott, Ariz	Nov. 19, 1873		2.22	3.49	1.28	0.50	0.54	1.77	14.51
Tucson, Ariz	Dec. 2, 1875	June 15, 1883	3.32	3.17	1.45	0.44	0.50	1.06	13.23
Yuma, Ariz	Nov. 18, 1873		0.22	0.25	0.09	0.04	0.03	0.31	2.04
La Mesilla, N. Mex	June 16, 1876	Aug. 6, 1882	2.21	1.16	0.86	0.87	0.41	0.75	9.38
Santa Fé, N. Mex	Nov. 20, 1871	June 15, 1883	3.41	3.01	1.25	1.02	0.91	0.65	13.89
Silver City, N. Mex	May 15, 1878	Mar. 31, 1883	3.96	5.95	2.24	1.19	1.40	0.75	20.19

SIGNAL OFFICE, WAR DEPARTMENT,
Washington, June 5, 1884.

WAR DEPARTMENT,
OFFICE OF THE CHIEF SIGNAL OFFICER,
Washington City, May 29, 1884.

SIR: Referring to your communication of the 27th instant, I have the honor to inclose herewith extract from the records of this office.

I am, very respectfully, your obedient servant,

W. B. HAZEN,
Brig. and Bvt. Maj. Gen., Chief Signal Officer, U. S. A.

MR. JOSEPH NIMMO, Jr.,
Chief of Bureau of Statistics, Treasury Department.

Statement showing the annual and mean annual precipitation at the below-named stations of the Signal Service, United States Army, in Texas, compiled from the commencement of observations at each, from the records on file at the Office of the Chief Signal Officer of the Army.

Stations in Texas.	Precipitation (in inches and hundredths).						
	1872.	1873.	1874.	1875.	1876.	1877.	1878.
Brackettville							25.66
Brownsville					25.81	25.86	36.35
Coleman City							29.32
Concho, Fort							24.84
Corsicana				32.11	33.69	53.89	39.07
Davis, Fort							
Denison					42.10	52.64	41.15
Elliott, Fort							
El Paso							
Fredericksburg							22.78
Galveston	41.72	58.91	49.39	58.48	50.92	66.87	60.90
Indianola		43.30	44.51	35.39	32.57	42.67	39.74
McKavett, Fort							21.88
Rio Grande City							24.43
San Antonio							39.60
Stockton, Fort							12.47

Statement showing the annual and mean annual precipitation at the below-named stations of the Signal Service, &c.—Continued.

Stations in Texas.	Precipitation (in inches and hundredths).					
	1879.	1880.	1881.	1882.	1883.	Mean annual.
Brackettville	16.52	40.54	33.75	21.23	(*)	27.54
Brownsville	34.73	38.07	31.74	32.56	31.02	32.02
Coleman City	17.99	35.83	(†)	35.60	(*)	29.68
Concho, Fort	18.54	37.95	18.96	42.12	32.64	29.18
Corsicana	35.18	42.33	(*)	.....	.....	39.38
Davis, Fort	21.41	23.48	(†)	20.22	14.22	19.83
Denison	20.45	46.31	36.98	50.44	(*)	41.44
Elliott, Fort	.....	16.79	16.16	24.76	28.21	21.48
El Paso	6.81	14.37	18.17	8.27	12,98	12.12
Fredericksburg	18.27	47.23	24.11	33.46	(*)	29.17
Galveston	26.93	50.97	53.28	57.68	31.11	51.43
Indianola	26.78	45.17	37.70	41.90	30.69	38.22
McKavett, Fort	16.65	28.61	21.72	29,03	(*)	23.58
Rio Grande City	25.61	22.31	28.13	(†)	(†)	25.12
San Antonio	22.80	41.91	26.78	36.39	(*)	33.50
Stockton, Fort	5.12	33.40	12.65	25.56	27.39	19.43

* Station closed. † Record incomplete.

SIGNAL OFFICE, WAR DEPARTMENT,
Washington, May 29, 1884.

[Inclosure F.]

Statement furnished by the United States Coast and Geodetic Survey in regard to distances

UNITED STATES COAST AND GEODETIC SURVEY OFFICE,
Washington, June 4, 1884.

SIR: Your letter of the 2d, asking for certain distances, was referred by me to the hydrographic inspector of the Coast and Geodetic Survey, Commander C. M. Chester, United States Navy.

In his absence I inclose a report from his assistant, Lieut. J. F. Moser, United States Navy, which contains the information desired.

Very respectfully,

C. O. BOUTELLE,
Assistant United States Coast and Geodetic Survey, in charge of office.

JOSEPH NIMMO, Jr.,
Chief of Bureau of Statistics, Treasury Department.

UNITED STATES COAST AND GEODETIC SURVEY OFFICE,
Washington, June 4, 1884.

DEAR SIR: Your letter of the 2d instant to the assistant in charge of the United States Coast and Geodetic Survey Office has been referred to this office. In reply I would say that the length of shore-line from Eastport, Me., to Cape Henry, Va., measured from headland to headland, as indicated on the chart sent, is 742 nautical miles.

The length of shore-line from Cape Henry, Va., to Cape Sable, Fla., is 1,073 nautical miles.

The length of shore-line from Cape Sable, Fla., to Brownsville, Tex., is 1,415 nautical miles.

Shore-line from mouth of Mississippi River (South Pass) to mouth of Sabine River is 260 nautical miles.

Shore-line measured from mouth of Sabine River to Rio Grande entrance is 323 nautical miles.

From Galveston to New Orleans, via Port Eads, is 391¼ nautical miles.
From New Orleans to New York, via Key West, is 1,790 nautical miles.
From Galveston to New York, via Key West, is 1,925 nautical miles.
From New Orleans to Liverpool, via Key West, is 4,766 nautical miles.
From Galveston to Liverpool, via Key West, is 4,966 nautical miles.

Very respectfully,

J. F. MOSER,
Lieutenant and Acting Hydrographic Inspector, Coast Survey.

JOSEPH NIMMO, Jr., Esq.,
Chief of Bureau of Statistics, Treasury Department, Washington, D. C.

Forwarded June 4, 1884.

C. O. BOUTELLE,
Assistant Coast and Geodetic Survey, in charge of office.

[Inclosure G.]

Statement furnished by the Hydrographic Office of the Navy Department in regard to the depth of water at the entrance to the harbors of Mexico on the Gulf of Mexico.

BUREAU OF NAVIGATION, NAVY DEPARTMENT,
Washington, D. C., June 4, 1884.

SIR: I have the honor to acknowledge the receipt of your letter of the 27th of May.

At Matamoras there is from 4 to 6 feet of water over the bar, and a rise and fall of 2 feet. Tampico, about 10 feet over bar, which is dangerous and shifting; 2 feet rise and fall of tide.

Vera Cruz, no bar; anchorage in 24 feet; 2 to 4 feet rise and fall. Vessels lie one-half mile from shore, and use lighters of 18 to 20 tons. Alvarado, 9 to 10 feet over the bar; 1½ to 2 feet rise and fall. Coatzacoalcos River, Minatitlan, 12 to 15 feet over the bar; 1 to 2 feet rise and fall.

This is all the information to be had on this subject at present. I shall take great pleasure in continuing the investigation if you desire.

Very respectfully,

GEO. W. PIGMAN,
Lieutenant-Commander, U. S. N., Acting Hydrographer.

Mr. JOSEPH NIMMO, Jr.,
Chief of the Bureau of Statistics, Treasury Department.

[Inclosure H.]

Statement showing the number and value of cattle (not including milch cows) in the United States in 1884, *by States and Territories, in order of magnitude of value.*

[From Agricultural Department Report No. 4, new series.]

Order.	States and Territories.	Number.	Value.
1	Texas	4,277,700	$74,902,527
2	Iowa	1,955,810	50,851,060
3	Illinois	1,442,344	40,443,326
4	Kansas	1,395,200	37,837,824
5	Nebraska	1,368,500	36,183,140
6	New York	886,041	33,084,771
7	Missouri	1,335,082	30,199,555
8	Ohio	1,017,820	29,944,264
9	Pennsylvania	875,994	27,812,809
10	Wyoming	897,000	23,456,550
11	Indiana	851,355	22,858,882
12	Colorado	772,560	20,449,663
13	Wisconsin	682,743	18,208,756
14	California	609,500	17,766,925
15	Montana	672,600	17,595,216
16	Oregon	535,600	14,038,076
17	New Mexico	690,562	13,818,146
18	Kentucky	498,888	13,794,253
19	Michigan	491,792	13,765,258
20	Minnesota	427,084	10,916,267
21	Virginia	436,820	8,976,651
22	Indian Territory	520,000	8,840,000
23	Tennessee	466,084	7,802,246
24	West Virginia	289,519	7,400,106
25	Dakota	270,600	7,222,314
26	Georgia	610,811	7,177,029
27	Vermont	187,933	6,184,875
28	Maine	188,919	6,051,076
29	Nevada	218,360	5,928,474
30	Arkansas	420,876	5,749,166
31	Washington	230,376	5,722,540
32	Alabama	480,100	5,439,533
33	Idaho	204,750	5,323,500
34	Florida	560,000	5,140,800
35	New Hampshire	141,784	4,741,257
36	North Carolina	419,508	4,547,467
37	Mississippi	420,499	4,545,594
38	Arizona	203,000	4,060,000
39	Connecticut	113,440	3,966,997
40	Maryland	139,592	3,686,625
41	Louisiana	271,603	3,318,989
42	Utah	132,180	3,157,780
43	New Jersey	69,947	2,627,909
44	South Carolina	216,880	2,548,340
45	Delaware	26,525	863,123
46	Rhode Island	13,427	517,074
	Total	29,046,101	683,229,054

(Inclosure I.]

The following table, showing the number and value of sheep on farms in the United States, has been compiled from a table presented in Special Report No. 4, new series, Department of Agriculture:

Table showing the estimated number and value of sheep on farms in the several States and Territories in the United States, January, 1884, stated in the order of magnitude of value.

[From Special Report No. 4, new series, Department of Agriculture.]

Order.	States and Territories.	Number.	Value.
1	Texas	7,957,275	$17,822,056
2	Ohio	5,000,036	14,650,105
3	California	6,203,064	11,785,822
4	New Mexico	4,435,200	7,539,840
5	Michigan	2,412,422	7,261,390
6	New York	1,732,332	6,223,012
7	Pennsylvania	1,749,236	5,580,063
8	Oregon	2,571,378	4,654,194
9	Indiana	1,145,084	3,217,686
10	Wisconsin	1,336,403	3,180,639
11	Illinois	1,126,908	3,008,844
12	Missouri	1,439,380	2,878,760
13	Colorado	1,248,360	2,696,458
14	Kentucky	980,166	2,577,837
15	Vermont	448,712	2,032,965
16	Kansas	821,709	1,889,931
17	West Virginia	671,226	1,751,900
18	Maine	577,236	1,627,806
19	Arizona	812,700	1,625,400
20	Iowa	497,161	1,382,108
21	Montana	465,750	1,350,675
22	Wyoming	598,000	1,303,640
23	Utah	564,300	1,297,890
24	Virginia	487,194	1,256,961
25	Tennessee	655,214	1,172,833
26	Washington	456,300	1,090,557
27	Georgia	543,415	815,122
28	Nevada	385,350	793,821
29	Minnesota	275,463	732,732
30	Nebraska	333,834	727,758
31	New Hampshire	209,686	629,058
32	North Carolina	452,176	624,008
33	Maryland	172,022	572,833
34	Alabama	343,925	512,448
35	New Jersey	117,008	505,475
36	Dakota	182,000	493,220
37	Idaho	187,500	468,750
38	Mississippi	293,477	480,759
39	Arkansas	227,293	370,488
40	Massachusetts	69,346	277,384
41	Connecticut	58,831	226,499
42	Louisiana	124,984	208,723
43	South Carolina	116,476	194,515
44	Florida	98,940	173,145
45	Rhode Island	21,077	85,151
46	Delaware	22,077	71,750
	Total	50,626,626	119,902,706

[Inclosure J.]

Cotton crop of the United States by States.

[1850–1880, Census Report of 1880; 1882 and 1883, Agricultural Report, 1883.]

States.	1849.	1859.	1869.	1879.	1882.	1883*.
	Bales.	*Bales.*	*Bales.*	*Bales.*	*Bales.*	*Bales.*
labama	564, 429	489, 955	429, 482	699, 654	810, 000	680, 400
rkansas	65, 344	367, 393	247, 968	608, 256	697, 000	578, 510
alifornia			34			
orida	45, 131	65, 153	39, 789	54, 997	62, 000	58, 900
eorgia	499, 091	701, 840	473, 934	814, 441	942, 900	772, 440
inois		1, 482	465			
diana	14		3			
ansas		61	7			
entucky	758		1, 080	1, 367		
ouisiana	178, 737	777, 738	350, 832	508, 569	560, 000	515, 200
issisippi	484, 292	1, 202, 507	564, 938	963, 111	1, 064, 000	936, 320
issouri		41, 188	1, 246	20, 318	†42, 000	†35, 700
evada			106			
ew Mexico		19				
orth Carolina	73, 845	145, 514	144, 935	389, 598	463, 000	402, 810
outh Carolina	300, 901	353, 412	224, 500	522, 548	630, 000	478, 800
ennessee	194, 532	296, 464	181, 842	330, 621	337, 000	343, 740
exas	58, 072	431, 463	350, 628	805, 284	1, 326, 000	1, 193, 400
tah		136	22			
irginia	3, 947	12, 727	183	19, 595	24, 000	18, 000
est Virginia			2			
Total	2, 469, 093	5, 387, 052	3, 011, 996	‡5, 755, 359	6, 957, 000	6, 014, 220

* Crop as indicated by December crop returns.
† Including Indian Territory.
‡ Including 17,000 bales produced in Indian Territory.

[Inclosure K.]

Product of cereals in Texas in 1882 *and* 1883.

Cereals.	1882.	1883.
	Bushels.	*Bushels.*
orn	63, 416, 300	63, 146, 300
heat	4, 173, 700	4, 301, 000
ye	60, 900	57, 855
ats	9, 988, 800	9, 489, 300
arley	118, 720	127, 030

There is usually no surplus of any of the cereals in Texas. The supply of corn last ear was about 35 bushels per capita, which was average supply of the United States er capita in the census years. The wheat supply was only about 2¼ bushels, which less than the consumption of the State.

The only cotton State which ever has an appreciable surplus of corn is Tennessee, nd that is but a small and unreliable quantity.

J. R. DODGE,
Statistician.

[Inclosure L.]

Statement showing, in order of magnitude, the number of miles of railroad in each State and Territory of the United States in 1884.

[From the Houston Daily Post, May 21, 1884.]

Order.	States and Territories.	Railroad mileage.	Order.	States and Territories.	Railroad mileage.
		Miles.			*Miles.*
1	Illinois	8,927	26	Mississippi	1,671
2	New York	7,436	27	South Carolina	1,538
3	Ohio	7,280	28	Louisiana	1,270
4	Pennsylvania	7,221	29	Florida	1,218
5	Iowa	7,199	30	New Mexico	1,157
6	Texas	6,166	31	Utah	1,127
7	Indiana	5,198	32	Maine	1,097
8	Michigan	5,075	33	Montana	1,072
9	Missouri	4,606	34	Maryland	1,068
10	Minnesota	4,142	35	New Hampshire	1,038
11	Wisconsin	4,043	36	Oregon	1,003
12	Georgia	2,940	37	Connecticut	965
13	California	2,894	38	Nevada	948
14	Colorado	2,861	39	Vermont	942
15	Nebraska	2,693	40	West Virginia	940
16	Dakota	2,544	41	Arizona	921
17	Virginia	2,584	42	Idaho	754
18	Kansas	2,409	43	Wyoming	613
19	Tennessee	2,107	44	Washington Territory	595
20	Alabama	2,090	45	Indian Territory	362
21	Massachusetts	1,985	46	Delaware	282
22	Kentucky	1,935	47	Rhode Island	212
23	New Jersey	1,878			
24	North Carolina	1,811		Total miles in United States.	120,434
25	Arkansas	1,732			

[Inclosure M.]

Exports of cotton from the United States, by ports, during the five years from 1879 *to* 1883, *inclusive, in the order of magnitude during the year* 1883.

Order.	Ports.	1879.	1880.	1881.	1882.	1883.
		Bales.	*Bales.*	*Bales.*	*Bales.*	*Bales.*
1	New Orleans, La	1,249,769	1,396,680	1,616,067	1,227,963	1,495,099
2	New York, N. Y	349,465	642,612	594,249	612,670	739,437
3	Galveston, Tex	347,655	294,074	469,894	279,356	516,993
4	Savannah, Ga	461,563	424,645	503,570	340,642	419,006
5	Charleston, S. C	375,465	314,499	439,086	306,351	372,902
6	Norfolk and Portsmouth, Va	203,536	253,955	330,122	325,532	370,221
7	Baltimore, Md	96,505	116,454	155,374	164,832	248,163
8	Boston and Charlestown, Mass	118,953	123,543	123,399	179,910	186,164
9	Philadelphia, Pa	26,436	35,021	66,734	88,162	103,570
10	Wilmington, N. C	64,431	36,586	69,810	63,833	55,579
11	Mobile, Ala	123,214	113,674	112,669	49,880	45,270
12	Richmond, Va	.....	1,470	.....	.....	32,607
13	Huron, Mich	12,417	15,660	19,383	26,708	27,256
14	Corpus Christi, Tex	1,361	1,346	1,011	833	4,993
15	Detroit, Mich	2,418	4,425	5,096	6,791	4,880
16	Beaufort, S. C	8,129	28,567	37,480	13,758	3,318
17	Vermont, Vt	135	250	1,589	2,223	979
18	San Francisco, Cal	9	1	.....	.....	137
19	Fernandina, Fla	246	582	725	806	128
20	Pensacola, Fla	16,814	.....	100	3,900	100
21	Brazos de Santiago, Tex	50	61	.....	.....	2
22	Brunswick, Ga	.....	.....	.....	148	2
23	New Bedford, Mass	.....	.....	.....	1	2
	Passamaquoddy, Me	1,003	.....	.....	.....	.....
	Saluria, Tex	3,167	4,419	1,703	407	.....
	Portland and Falmouth, Me	.....	1,628	.....	.....	.....
	Wiscasset, Me	.....	1	.....	.....	.....
	Oswegatchie, N. Y	.....	.....	100	.....	.....
	Teche, La	.....	.....	1,582	.....	.....
	Total	3,462,741	3,810,153	4,549,743	3,694,706	4,626,806

[Inclosure K.]

Statement showing the number and tonnage of vessels in the foreign trade which entered at and cleared from the customs district of Galveston, Tex., during each of the years 1869, 1870, 1880, 1881, 1882, and 1883.

Year ended June 30—	Entered.		Cleared.	
	No.	Tons.	No.	Tons.
1869	70	32,265	100	47,755
1870	70	31,555	107	52,701
1880	193	117,972	173	94,007
1881	278	215,311	262	185,340
1882	216	141,743	185	115,579
1883	257	155,614	265	186,459

[Inclosure O.]

Statement showing the distances apart, by rail, of various cities in the United States.

[From the official table of distances for 1884, published by the War Department.]

Cities.	Distance.	Cities.	Distance.
	Miles.		Miles.
Boston to New York via Springfield and Hartford	227	Cincinnati to Saint Louis	341
New York to Philadelphia	91	Saint Louis to Chicago	282
Philadelphia to Baltimore	97	Saint Louis to Kansas City	277
Baltimore to Pittsburgh	293	Chicago to Milwaukee	85
Pittsburgh to Cleveland	140	Milwaukee to Minneapolis	334
Pittsburgh to Cincinnati	321	Saint Louis to New Orleans	780
Cincinnati to Louisville	110	New Orleans to Galveston	411
Cincinnati to Chicago	294	Saint Louis to Galveston	869

[Inclosure P.]

Statement furnished by the collector of customs at Galveston, Tex., in regard to the tonnage of steamers trading at that port.

CUSTOM-HOUSE, COLLECTOR'S OFFICE,
Galveston, Tex., June 6, 1884.

SIR: In reply to your telegram of the 3d instant I have to state that there are two regular lines of steamers, viz:

Mallory Line, of New York, employ 7 steamers between Galveston and New York during the year 1883, making 77 trips, aggregate tonnage being 15,685.

Morgan's Line, of New Orleans, employ 9 steamers in the Gulf trade, of an aggregate tonnage of 5,982, and 3 in New York trade; tonnage, 3,564.

I inclose details of names, tonnage, &c.

Regarding foreign lines, the West Indian and Pacific Steamship Company, and other lines unknown, British owners, traded in 1883 as follows:

Destination.	Steamers.	Tonnage.
Liverpool	24	44,296
Bremen	11	12,170
Havre	5	4,745
Revel	5	5,935
Genoa	1	851

North German Lloyds, German owners, 3 steamers, 5,590 tons, to Bremen.

Arrivals and departures of foreign steamers are irregular.

Very respectfully,

A. G. MALLOY,
Collector,
By THEO. HITCHCOX,
Special Deputy Collector.

Hon. JOS. NIMMO, Jr.,
Chief of Bureau of Statistics, Washington, D. C.

[Walthew & Sons, steamer and ship agents. Cable address: Walthew, Galveston, Scott's, Watkin's Vaughan's, and our own private code.]

GALVESTON, TEX., June 4, 1884.

SIR: In reply to your inquiry regarding steamers loaded by our firm at this port during the season 1883–'84, the following is a complete list, showing tonnage, number of bales, and draught of water when loaded:

Name.	Net tonnage.	Bales.	Draught.
			Feet.
Australian	1,699	5,939	20
Chilian	1,367	4,732	18
Hercules	764	2,278	16
Haytian	1,490	4,860	19
Westergate	1,179	4,509	16
Phœnix	1,150	4,362	16
General Roberts	936	3,997	15
Acton	1,066	4,130	15
Caur Beal	1,167	4,600	15
Bernard Hall	1,740	7,005	21

We also beg to hand you the following list of the West India and Pacific Steamship Company's steamers, for which we are the agents at this port, and which call for homeward cargo for Liverpool. After discharging at South American and Mexican ports, the Australian, Chilian, Haytian, and Bernard Hall loaded here last season. The following list comprises all their steamers in the Gulf trade, viz:

Name.	Tonnage, gross.	Name.	Tonnage, gross.
Andean	2,147	Haytian	2,336
American	1,838	Jamaican	2,009
Australian	2,498	Texan	3,257
Bernard Hall	2,678	Venezuelan	1,686
Californian	1,831	West Indian	1,804
Caribbean	1,852	Yucatan	2,816
Chilian	2,118	Floridian	3,270
Cuban	1,324		

All the above steamers draw from 16 to 18 feet in ballast, and from 18 to 22 cotton-loaded. We may add that they always lighter all their cargoes at this port. Any further information you may require we shall be glad to furnish you with.

I remain, sir, yours, obediently,

WALTHEW & SONS.

A. G. MALLOY, Esq.,
Collector, Galveston.

[Inclosure Q.]

Statement showing the imports of merchandise into and the exports of merchandise from Galveston, Texas, during each of the fiscal years 1860, 1870, 1880, 1881, 1882, *and* 1883; *also the imports into and exports from the same district, by principal and all other articles, for the fiscal year* 1883.

Years.	Imports.	Domestic exports.	Foreign exports.
1860	$533,153	$5,772,158	
1870	509,231	14,869,601	$4,131
1880	1,094,514	16,712,861	37,028
1881	3,101,324	26,685,248	81,859
1882	3,022,274	15,515,094	8,294
1883	1,511,712	29,627,898	1,149

IMPORTS BY ARTICLES, 1883.

Articles.	Quantities.	Values.
Coffee ..... pounds	9,262,555	$732,233
Railroad bars, iron ..... do	5,557,945	77,974
Railroad bars, steel ..... do	11,206,810	167,161
All other manufactures of iron and steel		231,260
Coal, bituminous ..... tons	33,486	76,002
Articles, the produce of the United States, brought back		40,755
Salt ..... pounds	16,725,636	31,660
Wine, spirits, and cordials		15,830
Beer, ale, and porter ..... gallons	18,066	14,369
Earthen and stone ware		14,102
Fruits of all kinds, including nuts		12,439
All other articles		97,927
Total		$1,511,712

DOMESTIC EXPORTS BY ARTICLES, 1883.

Articles.	Quantities.	Values.
Cotton ..... bales	516,993	$29,023,673
Cotton ..... pounds	268,276,602	
Oil cake and oil-cake meal ..... do	56,921,742	516,857
Animals, living		16,645
Wood, and manufactures of		11,446
All other articles		59,277
Total domestic exports		29,627,898
Foreign exports		1,149
Total domestic and foreign exports		29,629,047

TREASURY DEPARTMENT,
BUREAU OF STATISTICS,
May 26, 1884.

[Inclosure R.]

Value of the imports and exports of merchandise into and from the United States, by Customs Districts, during the year ended June 30, 1883.

Order.	Customs districts.	Exports.			Imports.	Total imports and exports.	Per cent. of total.
		Domestic.	Foreign.	Total.			
		Dollars.	*Dollars.*	*Dollars.*	*Dollars.*	*Dollars.*	
1	New York, N. Y	347, 308, 334	14, 117, 027	361, 425, 361	496, 005, 276	857, 430, 637	55. 43
2	Boston and Charlestown, Mass.	61, 273, 101	1, 085, 648	62, 356, 749	72, 552, 075	134, 908, 824	8. 72
3	New Orleans, La	94, 838, 634	268, 680	95, 107, 314	9, 596, 762	104, 704, 076	6. 77
4	San Francisco, Cal	44, 139, 303	820, 117	44, 959, 420	45, 702, 530	90, 661, 950	5. 86
5	Philadelphia, Pa	38, 132, 145	15, 599	38, 147, 744	33, 738, 556	71, 886, 300	4. 65
6	Baltimore, Md	54, 956, 650	47, 301	55, 003, 351	14, 599, 179	69, 602, 530	4. 50
7	Galveston, Tex	29, 627, 898	1, 149	29, 629, 047	1, 511, 712	31, 140, 759	2. 01
8	Savannah, Ga	22, 813, 347	.....	22, 813, 347	483, 281	23, 296, 628	1. 50
9	Charleston, S. C	22, 573, 167	60	22, 573, 227	498, 891	23, 072, 118	1. 49
10	Norfolk and Portsmouth, Va.	18, 445, 548	.....	18, 445, 548	186, 355	18, 631, 903	1. 20
11	Huron, Mich	10, 134, 522	814, 068	10, 948, 590	2, 906, 247	13, 854, 837	. 90
12	Oswego, N. Y	1, 453, 346	11, 824	1, 465, 170	8, 341, 324	9, 806, 494	. 63
13	Minnesota, Minn	7, 147, 017	22, 168	7, 169, 185	1, 085, 213	8, 254, 398	. 53
14	Vermont, Vt	1, 809, 521	.....	1, 809, 521	6, 194, 886	8, 004, 407	. 51
15	Buffalo Creek, N. Y	420, 815	3, 369	424, 184	5, 358, 215	5, 782, 399	. 37
16	Portland and Falmouth, Me.	2, 874, 557	229, 605	3, 104, 162	2, 486, 359	5, 590, 521	. 33
17	Champlain, N. Y	1, 901, 819	5, 400	1, 907, 219	3, 124, 968	5, 032, 187	. 33
18	Wilmington, N. C	4, 711, 923	.....	4, 711, 923	247, 910	3, 959, 833	. 32
19	Detroit, Mich	2, 647, 379	173, 583	2, 820, 962	2, 056, 979	4, 877, 941	. 31
20	Chicago, Ill	3, 714, 805	8, 743	3, 723, 548	649, 090	4, 372, 638	. 28
21	Willamette, Oreg	3, 655, 133	.....	3, 655, 133	433, 130	4, 088, 263	. 26
22	Richmond, Va	3, 028, 105	.....	3, 028, 105	442, 364	3, 470, 469	. 22
23	Niagara, N. Y	41, 539	.....	41, 539	3, 270, 671	3, 312, 210	. 21
24	Mobile, Ala	2, 837, 496	.....	2, 837, 496	374, 892	3, 212, 388	. 21
25	Miami, Ohio	3, 014, 123	.....	3, 014, 123	4, 578	3, 018, 701	. 20
26	Oregon, Oreg	2, 709, 404	.....	2, 709, 404	269, 512	2, 978, 916	. 19
27	Oswegatchie, N. Y	849, 774	1, 442	851, 216	2, 044, 525	2, 895, 741	. 19
28	Corpus Christi, Tex	1, 798, 981	200, 428	1, 999, 409	711, 787	2, 711, 196	. 18
29	Brazos de Santiago, Tex	1, 102, 861	286, 204	1, 389, 065	801, 447	2, 190, 512	. 14
30	Pensacola, Fla	2, 067, 057	.....	2, 067, 057	29, 073	2, 096, 130	. 14
31	Puget Sound, Wash	1, 770, 219	.....	1, 770, 219	95, 441	1, 865, 660	. 12
32	Brunswick, Ga	1, 553, 447	.....	1, 553, 447	4, 896	1, 558, 343	. 10
33	Yorktown, Va	1, 509, 689	.....	1, 509, 689	18, 255	1, 527, 944	. 10
34	Paso del Norte, Tex., and N. Mex.	.....	1, 162, 851	1, 162, 851	325, 950	1, 488, 801	. 09
35	Passamaquoddy, Me	447, 229	76	447, 305	872, 305	1, 319, 610	. 09
36	New Haven, Conn	257, 352	11, 705	269, 057	1, 049, 008	1, 318, 065	. 09
37	Key West, Fla	697, 898	3, 169	701, 067	472, 784	1, 173, 851	. 08
38	Genesee, N. Y	304, 485	.....	304, 485	739, 001	1, 043, 486	. 07
39	Saluria, Tex	871, 068	13, 309	884, 377	100, 084	984, 461	. 06
40	Cape Vincent, N. Y	180, 961	133, 818	314, 779	640, 826	955, 605	. 06
41	Beaufort, S. C	770, 996	.....	770, 996	8, 765	779, 761	. 05
42	Bangor, Me	116, 106	.....	116, 106	563, 444	679, 550	. 04
43	Duluth, Minn	399, 237	169, 686	568, 923	43, 068	611, 991	. 04
	All other ports	3, 317, 241	10, 741	3, 327, 982	2, 539, 300	5, 867, 282	. 38
	Total	804, 223, 632	19, 615, 770	823, 839, 402	723, 180, 914	1, 547, 020, 316	100. 00

[Inclosure S.]

Statement showing, in the order of magnitude of total tonnage, the number and tonnage of sailing and of steam vessels entered at the several seaports of the United States during the fiscal year ended June 30, 1883.

Ports.	Sail.		Steam.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.
New York	4,332	2,090,991	1,920	4,357,846	6,252	6,448,837
Boston	2,413	469,325	531	875,190	2,944	1,344,515
Baltimore	538	264,696	369	629,078	907	893,774
San Francisco	577	533,084	225	354,714	802	887,798
Philadelphia	870	463,677	215	393,615	1,085	857,292
New Orleans	359	171,147	500	563,644	859	724,791
Puget Sound	156	82,806	356	172,165	512	254,971
Pensacola	393	240,516	1	201	394	240,717
Passamaquoddy	269	14,154	204	185,644	473	199,798
Portland and Falmouth	311	63,672	74	117,141	375	180,813
Galveston	193	84,758	64	68,856	257	153,614
Savannah	232	115,869	20	24,340	252	140,209
All other ports	2,823	819,097	230	204,631	3,063	1,023,728
Total	13,466	5,413,792	4,709	7,947,065	18,175	13,360,857

[Inclosure T.]

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D, C., June 19, 1884.

Mr. JOSEPH NIMMO, JR.,
Chief Bureau of Statistics,
Treasury Department:

SIR: Referring to your letter of yesterday's date, I have to furish for your information the following copy of a telegram just received from Major S. M. Mansfield, Corps of Engineers, dated 18th instant:

"Depth of water on outer bar, Galveston, was thirteen feet at mean low tide and fourteen and one-tenth feet at mean high tide by last actual survey, January ninth, eighty-four."

Very respectfully, you ob't. serv't.,

[Signed] JOHN NEWTON,
Chief of Engineers,
Brig. & Bv't Maj. Gen.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 112.

IN THE SENATE OF THE UNITED STATES.

JUNE 25, 1884.—Ordered to be printed.

Mr. ALLISON submitted the following

RESOLUTION:

Ordered, That during the remainder of the present session of the Senate it shall be in order to move at any time that debate on any amendment, or all amendments, to any appropriation bill then before the Senate be limited to five minutes for each Senator, and that no Senator shall speak more than once on the same amendment in form or substance. The question on such motion shall be determined without debate.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 113.

IN THE SENATE OF THE UNITED STATES.

JUNE 26, 1884.—Referred to the Committee on Military Affairs and ordered to be printed.

Mr. BUTLER submitted the following

RESOLUTION:

Resolved, That the Secretary of War be, and he is hereby, directed to place on record in the War Department the order of President Jackson of March 3, 1837, canceling the commission conferring the rank of lieutenant-colonel by brevet on Robert Butler, Adjutant-General, dated July 1, 1815.

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 114.

IN THE SENATE OF THE UNITED STATES.

JUNE 26, 1884.—Ordered to be printed.

Mr. MCMILLAN presented a letter from the Acting Secretary of War, addressed to him as chairman of the Committee on Commerce, transmitting a report of a Board of Engineer Officers upon the subject-matter of the bill (S. 1441) to authorize the construction of bridges across the Great Kanawha River, and to prescribe the dimensions of the same, which was ordered to be printed.

WAR DEPARTMENT,
Washington City, June 18, 1884.

SIR: The Department duly received your letter of the 30th of April last, inclosing a copy of bill S. 1441, to authorize the construction of bridges across the Great Kanawha River, and to prescribe the dimensions of the same, and requesting its reference to a board of engineers as recommended by Lieut. Col. W. P. Craighill, Corps of Engineers, in a report upon said bill bearing date of March 18th, last.

In reply I have the honor to state that in accordance with your request, the bill in question was referred to a board consisting of Lieut. Cols. W. P. Craighill and William E. Merrill and Capt. James C. Post, of the Corps of Engineers, a copy of whose report, dated the 10th instant, together with the letter of the Chief of Engineers, of the 16th instant, submitting the same to this Department, is herewith inclosed.

The report of the Board is fully concurred in by the Chief of Engineers, and, in view of its importance to the general subject of bridging navigable waters, it is respectfully recommended that it be printed.

The copy of the bill received with your letter is herewith returned.

Very respectfully, your obedient servant,

S. V. BENÉT,
Brig. Gen., Chief of Ordnance, and Acting Secretary of War.

Hon. S. J. R. MCMILLAN,
Chairman Committee on Commerce, United States Senate.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., June 16, 1884.

SIR: I have the honor to acknowledge the reference to this office May 3, ultimo, of the letter of April 30, 1884, from the chairman of the Committee on Commerce of the United States Senate, referring to the

War Department S. 1441, a bill "to authorize the construction of bridges across the Great Kanawha River, and to prescribe the dimensions of the same," with request that it be referred to a board of engineers, as recommended by Colonel Craighill, &c., and to state that, with your sanction, a Board, consisting Lieut. Cols. William P. Craighill and William E. Merrill and Capt. James C. Post, of the Corps of Engineers, was constituted to examine and report upon the same.

The Board has submitted its report to this office, and a copy of it, dated 10th instant, is inclosed.

It will be seen that the report is an exhaustive one, covering all of the points of the case and expressing the views and conclusions of the Board with force and perspicuity. It is fully concurred in by this office, and it is respectfully suggested, in view of its importance to the general subject of bridging navigable waters, that its printing be recommended.

The letter of the chairman of the Committee on Commerce of the Senate is herewith respectfully returned.

Very respectfully, your obedient servant,

JOHN NEWTON,
Chief of Engineers, Brig. and Bvt. Maj. Gen.

Hon. ROBERT T. LINCOLN,
Secretary of War.

BALTIMORE, MD., *June* 10, 1884.

GENERAL: The Board of Engineers constituted by Special Orders, No. 55, Headquarters Corps of Engineers, U. S. A., Washington, D. C., May 14, 1884, and directed "to assemble at such point on the Great Kanawha River, West Virginia, as may be selected by the senior member to consider and report upon Senate bill No. 1441" to authorize the construction of bridges across the Great Kanawha River, and to prescribe the dimensions of the same," have the honor to submit the following report:

As soon as practicable after receiving the order the Board caused notices to be published in the papers of Charleston, W. Va., and in several of those at Cincinnati, Ohio, stating that the Board would meet at Charleston, W. Va., on May 28, and inviting all persons interested in the bridging of the Great Kanawha to be present in person, or to communicate by letter with the Board at its meeting. Individual notices were also sent to those known to be interested.

The Board met on the day appointed at Charleston, and there were present representatives of the railroad and coal interests, of the general commerce of the river, and of the city of Charleston. After giving every one present an opportunity to state his views, and after free and full discussion, the Board adjourned until the 30th to allow sufficient time for the collection of additional data and to enable its members to visit the upper part of the river.

On the 30th the Board resumed its session and after due consideration and full discussion of the bill referred to it and the information that had been obtained, they prepared a bill which they believe will fully protect the needs of commerce, without exacting any conditions from bridge companies other than those absolutely required for the preservation of navigation. They therefore have the honor to submit the following

bill, which, for convenience of comparison, has been written in
ıl columns with Senate bill 1441, referred to them for report:

(S. 1441.)	(Substitute proposed by Board of Engineers.)
ı to authorize the construction of es across the Great Kanawha , and to prescribe the dimensions ı same.	A BILL to authorize the construction of bridges across the Great Kanawha River below the falls, and to prescribe the dimensions of the same.

only change which the Board of Engineers would recommend in
le of the bill is to add the words "below the falls." The Great
vha River is formed by the junction of the Gauley and the New,
›int 2 miles above the falls. From this junction to the falls the
is not navigable, and its physical conditions are so different
hose that govern the remainder of the river, that a bridge law
›d to the navigable part of the Great Kanawha, would be wholly
icable to these 2 miles. Under these circumstances, the Board
the opinion that no bridge law is needed for this piece of river,
ıat it should therefore be specifically excepted from the operation
proposed law.

enacted by the Senate and House of ıtatives of the United States of Amer- ongress assembled, That any persons orations having lawful authority t a bridge or bridges across the Kanawha River, in West Virginia, ıreafter erect bridges across said r railroad or other uses upon com- with the provisions and require- ›f this act.	*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled*, That any persons or corporations having lawful authority to erect a bridge or bridges across the Great Kanawha River, in West Virginia, may hereafter erect bridges across said river for railroad or other uses upon compliance with the provisions and requirements of this act.

se sections are identical in the two bills.

2. That every bridge erected across at Kanawha River shall be built ıbroken and continuous spans, and ›t be of less elevation than [†] feet low-water mark over the channel river, as understood at the point tion, measuring for such elevation bottom chord of the bridge; nor e span of such bridge covering the ıannel of the river be less than four d feet in length, and the piers of idge shall be parallel with the cur- the river as near as practicable.	SEC. 2. That every bridge erected across the Great Kanawha River, in West Virginia, shall have its axis at right angles to the current at high towing stages, with its piers parallel to this current, and all of its spans shall be through spans. No riprap or other outside protection for insufficient foundations will be permitted around the channel piers, and all cofferdams or other temporary works must be removed by the owners of the bridge before it is opened to traffic. Every such bridge shall have at least one channel span, the center of which shall be in the middle of the channel usually run by descending coal fleets in high towing stages; said channel span to have a clear opening of four hundred feet at low-water line; said channel span shall be at least twenty-nine feet, measured to the lowest part of the span above local highest water thus far known, as determined by the United States Engineers, and shall be at least ninety feet above low water in bridges built at or near the mouth of the river, and seventy-five feet above low water in bridges built at or near Charleston, West Virginia.

chief points of difference between these two sections are as
s: The Board have fixed the heights of the proposed bridges above

high and low water; they have added a provision determining the direction of the axes of the bridges; they have required that heights shall be measured "to the lowest part of the span" instead of "to the bottom chord;" they have prohibited rip-rap, old cofferdams, &c., around the channel piers, and they have required that the channel spans be placed over the channel used by descending coal fleets instead of over "the main channel."

The heights given for channel spans, are based on the Ohio River Bridge law, under which the bridge over the Ohio at Point Pleasant was built, which has a height above low water of 90 feet. This height at Point Pleasant is also 29 feet above high water, and 29 feet above high water at Charleston is 75 feet above low water. As the heights above low water necessary to secure a given elevation above high water vary at different points on the river they have been stated at only two points. The provision governing the height above high water will secure an equality of protection to navigation throughout the whole length of the river. Future extraordinary floods have been purposely excluded, by limiting high water to "local highest water thus far known."

The axes of bridges have been placed at right angles to the current at high towing stages, as the wide channel span is mainly intended for the use of coal tows, and if adapted to their necessities, it will amply meet the wants of all other craft.

It is important that heights should be measured to the lowest part of the superstructure, as it is common to suspend deep floor beams below the bottom chord, thus occupying space that is needed for navigation.

Much trouble and loss have been caused on the Ohio River by obstructions, such as riprap and old coffer dams, around the channel piers of bridges constructed prior to the bridge law of 1872. This law expressly prohibits such obstructions. The same reasons render them equally, if not more, objectionable on the Great Kanawha River.

The change in the wording of the law about the location of the channel-span is merely a verbal one, in order to define the location more precisely.

SEC. 3. That any persons or corporations authorized to construct a bridge across the Great Kanawaha River shall give notice, by publication for one week in newspapers having a wide circulation, in not less than two newspapers in the cities of Charleston, West Virginia, and Cincinnati, Ohio, and shall submit to the Secretary of War, for his examination and approval, a design and drawings of the bridge and piers and a map of the location, giving, for the space of at least one mile above and one mile below the proposed location, the topography of the banks of the river, the shore-line at high and low water, the direction and strength of the current at all stages, and the soundings accurately showing the bed of the stream, the locality of any other bridge or bridges, and shall furnish such other information as may be required for a full and satisfactory understanding of the subject by the Secretary of War; and if the Secretary of War is satisfied that the provisions of the law have been complied with in regard to location, the building of the piers may be commenced at once; but if it shall appear that the conditions prescribed by

SEC. 3. That any persons or corporations authorized to construct a bridge across the Great Kanawaha River shall give notice, by publication for two weeks in newspapers having a wide circulation, in not less than two newspapers in each of the cities of Louisville, Kentucky; Cincinnati, Ohio; Gallipolis, Ohio, and Charleston, West Virginia, and shall submit to the Secretary of War, for his examination, a design and drawings of the bridge and piers and a map of the location, giving, for the space of at least one mile above and one mile below the proposed location, the topography of the banks of the river, and the shore-lines at high and low water. This map shall be accompanied by others drawn to a scale of one inch to two hundred feet, giving, for a space of one-half a mile above the line of the proposed bridge and a quarter of a mile below, an accurate representation of the bottom of the river by contour lines two feet apart, determined by accurate soundings, and also showing over the whole width of this part of the river the force and direction of the currents at low water, and at high-towing stages, by triangulated observations

this act cannot be complied with at the location where it is desired to construct the bridge, the Secretary of War shall, after considering any remonstrances filed against the building of said bridge, and furnishing copies of such remonstrances to the board of engineers provided for in this act, detail a board composed of three experienced officers of the Corps of Engineers to examine the case, and may, on their recommendation, authorize such modifications in the requirements of this act, as to location and piers, as will permit the construction of the bridge, not, however, diminishing the width of the spans contemplated by this act: *Provided*, That the free navigation of the river be not materially injured thereby.

on suitable floats. The maps shall also show the locations of other bridges, locks, and dams, coal tipples, cribs, and all public and private structures in the vicinity inside of high-water lines, and shall give such other information as the Secretary of War may require for a full and satisfactory understanding of the subject. Said maps and drawings shall be referred to a board of engineer officers for examination and report, which board shall personally examine the site of the proposed bridge, and shall hold a public session at some convenient point to hear all objections thereto, of which public session due notice and invitation to be present shall be given to all interested parties; and if said board of engineer officers report that the site is unfavorable the Secretary of War shall be authorized, on the recommendation of said board, to order such changes in the bridge or its piers, or such guiding dikes or other auxiliary works, as may be necessary for the security of navigation; and such changes or additions shall be made at the expense of the owners of said bridge; and the proposed bridge shall only be a legal structure when built as approved by the Secretary of War.

The changes proposed by the Board are the following: Advertisements are to be published for two weeks instead of one, in eight newspapers instead of four, the maps and drawings required are stated in greater detail, and the methods of examining and reporting on a proposed bridge are also given in greater detail.

As to all of the above it will suffice to state, that this section in Senate bill 1441 is based on the Ohio River bridge law of December 18, 1872, while the section recommended by the Board is based on the amended Ohio River bridge law of February 14, 1883, which is supposed to contain all the improvements in the law of 1872 that were suggested by ten years of experience in the practical operation of that law.

SEC. 4. That all parties owning, occupying, or operating bridges over the Great Kanawha River shall maintain, at their own expense, from sunset to sunrise, throughout the year, such lights on their bridges as may be required by the Light-House Board for the security of navigation; all persons owning, occupying, or operating any bridge over the Great Kanawha River shall, in any event, maintain all lights on their bridge that may be necessary for the security of navigation.

SEC. 4. That all parties owning, occupying, or operating bridges over the Great Kanawha River, shall maintain, for the security of navigation, at their own expense, from sunset to sunrise, throughout the year, such lights on their bridges as may be required by the Light-House Board, or the United States engineer officer in charge of said river; and during the construction of any bridge under this act, such lights and buoys shall be kept on coffer-dams, cribs, piles of stone, floating craft, rafts, etc., used in the construction of the bridge, as may be necessary for the security of navigation.

The only material change in this section is the addition of a provision for lighting the bridge and its accessories *during construction*, and this addition is based on experience on the Ohio River, where its necessity has been demonstrated. This necessity is greater on a small river than on a large one, as there is a greater proportional obstruction of navigation during the construction of a bridge.

SEC. 5. That the officers and crews of all vessels, boats, or rafts navigating the Great Kanawha River are required to regulate the use of the said vessels, and of any pipes or chimneys belonging thereto, so as not to interfere with the elevation, construction, or use of any of the bridges erected or legalized under the provisions of this act.

SEC. 5. That the officers and crews of all vessels, boats, or rafts navigating the Great Kanawha River are required to regulate the use of the said vessels, and of any pipes or chimneys belonging thereto, so as not to interfere with the construction of any of the bridges authorized by the provisions of this act.

This section has been modified so as to limit its operation to the period of bridge construction. Experience on the Ohio River has conclusively proved that it is impossible for any floating craft to injure a finished bridge. There are several cases in which the smoke-stacks of steamboats have come in contact with bridges, and the invariable result has been the destruction of the stacks without injury to the bridge. As these accidents are always due to a mistake in the height of the water, and as the cost always falls on the party making the mistake, it seems unnecessary to add any additional penalty.

SEC. 6. That any bridge constructed under this act and according to its limitations shall be a lawful structure, and shall be recognized and known as a post-route, upon which also no higher charge shall be made for the transmission over the same of the mails, the troops, and the munitions of war of the United States than the rate per mile paid for the transportation over the railroads or public highways leading to the said bridge; and the United States shall have the right of way for postal-telegraph purposes across any such bridge; and in case of any litigation arising from any obstruction or alleged obstruction to the navigation of said Great Kanawha River created by the construction of any bridge under this act, the cause or question arising may be tried before the district court of the United States for the district of West Virginia.

SEC. 6. That any bridge constructed under this act and according to its limitations shall be a lawful structure, and shall be recognized and known as a post-route, upon which also no higher charge shall be made for the transmission over the same of the mails, the troops, and the munitions of war of the United States than the rate per mile paid for the transportation over the railroads or public highways leading to the said bridge; and the United States shall have the right of way for telegraph or telephone purposes across any such bridge; and in case of any litigation arising from any alleged obstruction to the navigation of said Great Kanawha River created by the construction of any bridge under this act, the cause or question arising may be tried before the district court of the United States for the district of West Virginia.

In this section instead of "postal telegraph purposes" the Board have inserted the words "telegraph or telephone purposes." The object of this change is to secure the right of way for the telephone line connecting the Government works on the Great Kanawha. It is believed that the word "telegraph" is more general than "postal telegraph," and that it not only covers that kind of telegraph, but all other kinds.

SEC. 7. That the Secretary of War is hereby authorized and empowered to permit the construction of any railroad bridge or crossing over or across the Great Kanawha River, on or near any permanent or stationary dam, and the adjacent lock, now or hereafter constructed in said river under the authority of the United States: *Provided*, That any such bridge or crossing shall in all respects conform to such dimensions, plans, conditions, limitations, and location as the Secretary of War may prescribe and require: *And provided further*, That the usefulness of said dams and locks for the purposes for which they have been constructed is not thereby injured, impaired, or destroyed. Any bridge or crossing over the said river under this

n need not conform to the dimen-
in respect to the width, height, num-
r character of spans specified in any
section of this act.

is section has been stricken out, as the Board believe that the con-
on of the privilege of crossing on a Government dam would be in-
us to the interests of the United States.

. 8. That the right to alter or amend
ct so as to prevent or remove all ma-
obstructions to the navigation of
iver by the future construction of
es is hereby expressly reserved with-
ny liability of the Government for
ges, on account of the alteration or
dment of this act, or on account of
revention or requiring the removal
y such obstructions; and if any
ge be made in the plan of construc-
f any bridge constructed under this
uring the progress of the work there-
before the completion of such bridge,
change shall be subject to the ap-
l of the Secretary of War; and any
ge in the construction or any altera-
f any such bridge that may be di-
l at any time by Congress shall be
at the cost and expense of the own-
ereof.

SEC. 7. That the right to alter or amend this act so as to prevent or remove all material obstructions to the navigation of said river by the future construction of bridges, is hereby expressly reserved without any liability of the Government for damages on account of the alteration or amendment of this act, or on account of the prevention or requiring the removal of any such obstructions; and any change in the construction or any alteration of any such bridge that may be directed at any time by Congress shall be made at the cost and expense of the owners thereof.

this section the Board of Engineers have stricken out the clause
ing to changes of plan during construction. This clause is unnec-
ry, because changes can be made without it, by filing new plans
the Secretary of War and proceeding *de novo*. No changes that
not receive the same scrutiny and publicity as the original plans
ld be permitted.

ppended to this report will be found a letter from Assistant Engin-
A. M. Scott, in local charge of the Great Kanawha River, to Lieut.
W. P. Craighill, Corps of Engineers. Mr. Scott's letter contains
able information and data which have greatly aided the Board in
ing the bill which they have prepared, and they would request that
rm a part of this report.

spectfully submitted.

WM. P. CRAIGHILL,
Lieutenant-Colonel of Engineers.
WM. E. MERRILL,
Lieutenant-Colonel of Engineers.
JAS. C. POST,
Captain of Engineers.

ig. Gen. JOHN NEWTON,
Chief of Engineers, U. S. A.

L to authorize the construction of bridges across the Great Kanawha River below the Falls, and to prescribe the dimensions of the same.

it enacted by the Senate and House of Representatives of the United States of America ngress assembled, That any persons or corporations having lawful authority to a bridge or bridges across the Great Kanawha River in West Virginia may here-erect bridges across said river, for railroad or other uses, upon compliance with rovisions and requirements of this act.

. 2. That every bridge erected across the Great Kanawha River in West Vir-

ginia shall have its axis at right angles to the current at high towing stages, with its piers parallel to this current, and all of its spans shall be through spans. No rip-rap or other outside protection for insufficient foundations will be permitted around the channel-piers, and all coffer-dams or other temporary works must be removed by the owners of the bridge before it is opened to traffic. Every such bridge shall have at least one channel-span, the center of which shall be in the middle of the channel usually run by descending coal fleets in high-towing stages; said channel-span to have a clear opening of four hundred feet at low-water line. Said channel-span shall be at least twenty-nine feet, measured to the lowest part of the span above local highest water thus far known, as determined by the United States engineers, and shall be at least ninety feet above low water in bridges built at or near the mouth of the river, and seventy-five feet above low water in bridges built at or near Charleston, West Virginia.

SEC. 3. That any persons or corporations authorized to construct a bridge across the Great Kanawha River shall give notice by publication for two weeks in newspapers having a wide circulation, in not less than two newspapers in each of the cities of Louisville, Kentucky; Cincinnati, Ohio; Gallipolis, Ohio, and Charleston, West Virginia, and shall submit to the Secretary of War, for his examination, a design and drawings of the bridge and piers, and a map of the location, giving for the space of at least one mile above and one mile below the proposed location the topography of the banks of the river and the shore lines at high and low water. This map shall be accompanied by others drawn to a scale of one inch to two hundred feet, giving for a space of one-half a mile above the line of the proposed bridge and a quarter of a mile below an accurate representation of the bottom of the river by contour lines two feet apart, determined by accurate soundings, and also showing over the whole width of this part of the river the force and direction of the currents at low water and at high-towing stages, by triangulated observations on suitable floats. The maps shall also show the locations of other bridges, locks, and dams, coal tipples, cribs, and all public and private structures in the vicinity, inside of high-water lines, and shall give such other information as the Secretary of War may require for a full and satisfactory understanding of the subject. Said maps and drawings shall be referred to a board of engineer officers for examination and report, which board shall personally examine the site of the proposed bridge, and shall hold a public session at some convenient point to hear all objections thereto, of which public session due notice and invitation to be present shall be given to all interested parties; and if said board of engineer officers report that the site is unfavorable the Secretary of War shall be authorized, on the recommendation of said board, to order such changes in the bridge or its piers, or such guiding-dikes or other auxiliary works, as may be necessary for the security of navigation, and such changes or additions shall be made at the expense of the owners of said bridge; and the proposed bridge shall only be a legal structure when built as approved by the Secretary of War.

SEC. 4. That all parties owning, occupying, or operating bridges over the Great Kanawha River shall maintain for the security of navigation, at their own expense, from sunset to sunrise, throughout the year, such lights on their bridges as may be required by the Light-House Board, or the United States engineer officer in charge of said river, and during the construction of any bridge under this act such lights and buoys shall be kept on coffer-dams, cribs, piles of stone, floating craft, rafts, &c., used in the construction of the bridge, as may be necessary for the security of navigation.

SEC. 5. That the officers and crews of all vessels, boats, or rafts navigating the Great Kanawha River are required to regulate the use of the said vessels, and of any pipes or chimneys belonging thereto, so as not to interfere with the construction of any of the bridges authorized by the provisions of this act.

SEC. 6. That any bridge constructed under this act, and according to its limitations, shall be a lawful structure, and shall be recognized and known as a post-route, upon which also no higher charge shall be made for the transmission over the same of the mails, the troops, and the munitions of war of the United States than the rate per mile paid for the transportation over the railroads or public highways leading to the said bridge; and the United States shall have the right of way for telegraph or telephone purposes across any such bridge; and in case of any litigation arising from any alleged obstruction to the navigation of said Great Kanawha River, created by the construction of any bridge under this act, the cause or question arising may be tried before the district court of the United States for the district of West Virginia.

SEC. 7. That the right to alter or amend this act, so as to prevent or remove all material obstructions to the navigation of said river by the future construction of bridges, is hereby expressly reserved, without any liability of the Government for damages on account of the alteration or amendment of this act, or on account of the prevention or requiring the removal of any such obstructions; and any change in the construction, or any alteration of any such bridge that may be directed at any *time* by Congress, shall be made at the cost and expense of the owners thereof.

REPORT OF MR. A. M. SCOTT, ASSISTANT ENGINEER.

UNITED STATES ENGINEER OFFICE,
Charleston, W. Va., March 14, 1884.

COLONEL: In compliance with yours of the 26th ultimo, I have the honor to report follows on Senate bill 1441, recently introduced, "To authorize the construction bridges across the Great Kanawha River, and to prescribe the dimensions of same:"

SECTION 2 OF BILL. HEIGHT OF BRIDGE.

This is left blank in the bill, but the construction is materially defective on this int, in assuming but one elevation above low water for the whole river. The range tween high and low water and the continuance of high stages is so much greater the lower river, owing mainly to the effect of the Ohio, that it is essential, in a neral law, to provide for increasing the height of bridges as we go down stream. is will appear from the following comparison of gauge records at Charleston and the mouth of the river.

The following table shows the average number of days per year (taken for eleven ars, ending August 10, 1883) that the water at Charleston has been *at or above* the ge given; also showing the maximum number of days in any one year and the al number of days in the eleven years it has been at or above the same stage, zero gauge being practically extreme low water:

	Gauge reading in even feet.							
	10	15	20	25	30	31	35	40
atest number of days in any one year....	66	31	11	4	4	3	2	1
al number of days in eleven years...	421	152	63	25	11	9	4	1
erage number of days per year.....	38. 27	13. 82	5. 73	2. 27	1. 00	0. 82	0. 56	0. 09

heat known water (September, 1861) 46. 87
heat *since* 1861 (September, 1878)..... 41. 78

The following table shows the same from the gauge record at the mouth of the river, nt Pleasant, for five years, ending August 10, 1883; zero of gauge, eight-tenths of ot below extreme low water:

	Gauge reading in feet.							
	10.	20.	25.	30.	35.	40.	46.	50.
atest number of days in any one year at the water was at or above the reading.	226	111	72	51	27	14	7	3
al number of days in five years.....	874	374	212	131	64	30	8	3
erage number of days per year.....	174. 8	74. 8	42. 4	26. 2	12. 8	6	1. 60	0. 60

heat during the five years (February, 1883)..... ..... 53. 84
heat known water (February, 1884). 61. 16

This shows a much greater range and higher average stages at the mouth of the er than at Charleston. The extreme range between highest and lowest water is 19 feet greater at the mouth. As to duration of high stages it appears that while average at Charleston for a 30-foot reading, for instance, is but one day in a year s twenty-six days at the mouth; for a 35-foot stage, $\frac{35}{100}$ days against 12.8, and so

A comparison of the gauges simply during the five years covered by the Point asant record, *i. e.*, from August 10, 1878, to August 10, 1883, shows a *still greater erence in high stages*, from the fact that the Kanawha proper has been exception- r free from floods since 1879.

owing to the moderate slope in the Kanawha, this variation in the height and du- ion of water, caused by the Ohio, diminishes but gradually as we ascend the river, l the effect of high tides in the Ohio is very marked even at Charleston. The low- er slope in the last 13 miles of the river is but 2.10 feet in the whole distance; in last 21 miles, 9.50 feet; in 32 miles, 17.70 feet; from Charleston (58 miles), 45 feet. n this connection some of the conditions prevailing during the late flood in the

Ohio, though exceptional, may be referred to. The highest point at the mouth of the river (February 10), was 61.16 above low water. New River and the Upper Kanawha were but moderately high, not up to ordinary high mark, at the time. The highest reading at Hinton (February 9), was 10.60 feet; at Cannelton (on the 10th), 23.70; Charleston (on the 11th), 29.40; Mouth of Coal, 38.50; Winfield, 32 miles above the mouth of the river, 46.50 feet. All practically with reference to low water.

The following table shows the height above water of the pilot-houses and smoke-stacks of some of the largest tow and passenger boats on the river:

	Top of pilot-house.	Top of chimneys.
	Feet.	*Feet.*
Virgie Lee (passenger), Charleston and Cincinnati packet	42.32	55.77
W. A. Chancellor (passenger), Charleston and Pittsburgh packet	38.16	48.66
Boone (passenger), Charleston and Gallipolis packet	37.20	49.13
Telephone (passenger), Charleston and Gallipolis packet	36.00	46.94
Thos. W. Means (tow-boat)	37.03	53.38
J. D. Lewis (tow-boat)	36.35	48.20
Liberty (tow-boat)	34.86	52.62
D. T. Lane (tow-boat)	33.25	50.75
D. W. Woodward (tow-boat)	35.25	.....
Nella F. Brown (tow-boat)	31.40	40.45

The governing condition as to height of bridge is shown to be the pilot-houses of the larger passenger boats. If a bridge is high enough for them, there will be ample room for tow-boats. The Virgie Lee is the largest of the large boats running in the river. The Pittsburgh packet Chancellor is the next largest. It will be noticed that the Virgie Lee's pilot-house is over 4 feet higher than the Chancellor's, and from 5 to 9 feet higher than the large tow-boats. The heights for pilot-houses given is the top of the "ginger-bread work." This on the Kanawha boats is about 1 foot, generally rather less than that, above the top of the roof.

Captain Turtle, in his report to you of July 20, 1880, respecting the proposed wagon bridge at Charleston, says:

"I am of opinion that 45 feet for height of pilot-house and 60 feet for chimneys will be as great dimensions as will ever be found useful for boats doing general business on the Kanawha."

It appears to me that a safe regard for the prospective river interests and conditions will require a bridge high enough to pass a boat like the Virgie Lee in high—not extreme—stages. It is supposed, of course, that the boats will be provided for lowering their chimneys, and that, when necessary (which should rarely be the case even for the large boats) whistles and stove-pipes could be reduced to about the level of the pilot-house roof.

All considered, my own judgment in regard to limitation for heights of channel spans would be, for all bridges between the mouth of the river and the head of Knob Shoal at least 90 feet; between the head of Knob Shoal and the head of Red House Shoal at least 85 feet; between the head of Red House Shoal and the mouth of Coal River at least 82 feet; between the mouth of Coal and the mouth of Elk River at least 78 feet; between the mouth of Elk to the head of proposed slack-water navigation at least 75 feet. All above local low water measured to the *lowest part of span.*

A bridge 75 feet above low water at Charleston would let the Virgie Lee pass, and allow 20 inches above pilot-house for clearance, up to a 31-foot stage. The table shows that the water has been up to this height less than one day in a year on an average. In eleven years it has been up to and above 31 feet nine days altogether. It would let the Boone and T. W. Means pass, with 12 inches clearance, up to a 37-foot stage, and the Telephone and Lewis up to 38 feet. The water has been up to 38 feet but one day in eleven years. The smoke-stacks of all the boats on the list except the Lee, Means, and Liberty could pass under, without being lowered, to at least 24-foot gauge. The water at Charleston has been at and above 24 feet thirty-one days altogether in eleven years, or an average of 2.83 days per year.

The records show that a bridge 90 feet high near the mouth of the river would be practically with reference to average headway about the same as a bridge 75 feet high at Charleston. Ninety feet there would let the Lee pass with same pilot-house clearance up to 46 feet and the Telephone and Lewis up to 53 feet gauge reading. (The difference of eight-tenths of a foot between gauge zero and low water is not considered.) The record shows the water to have been at and above 46 feet, 1.4 days per year, or seven days altogether in five years, and up to 53 feet one day only in five years. It will be remembered that last month's unprecedented rise in the Ohio is not included in this record.

Captain Turtle, in the report referred to on the proposed wagon bridge at Charleston, fixed on 70 feet as the lowest elevation to be permitted.

Considering only the past record and the present size of boats the heights proposed herein may appear somewhat greater than the interests of navigation require.

It should be borne in mind, however, that the high-water line and the average high stage tends to increase as the country becomes cleared and settled up. It is to be expected, too, that larger boats, particularly for towing, will come into use as the river is improved and the business increased. All considered, the elevations suggested are thought to be every way sufficient for the navigation interests, but no more than they are entitled to demand, and at the same time practicable and reasonable from either a railroad or a highway bridge point of view.

WIDTH OF CHANNEL SPANS.

On this point the comparative width of our navigation passes and the channel spans of bridges may be first alluded to. You make reference to this in a letter to Captain Turtle, quoted by him in his report referred to, to the effect that the spans should be wider than the passes.

The reasons why the bridge spans should be materially wider are obvious and may be principally referred to as follows:

(1.) The long lock-wall extending with its head crib some 400 feet above the line of the central pier is an excellent guide to descending boats. The lock-wall not only gives direction to the current, but boats with tows are enabled, in the most common towing stages, to "straighten up" alongside of it before starting to run the pass. This last is of great importance particularly in time of wind.

(2.) In time of high towing stages, when the works are covered, the lock wall still directs the current, and the risk of striking on this side is very small, and, even in case of collision, it will be a side or glancing blow of little danger compared with running or drifting against the end of a bridge pier.

(3.) The pass piers are covered at medium high stages, and we have practically the entire width of the river at dam during the time of greatest danger at a bridge. The pier of Dam No. 6 will be carried to a depth of 7 feet with Charleston gauge reading 17 feet.

Even if a bridge and pass were equally difficult to "run" there is no good reason why the one should be governed at all by the other. On account of labor and time required to maneuver a pass, its width is necessarily restricted. On the Kanawha, too, it is important to get the greatest length of *weir* possible. The dangers of navigation should not be increased by bridges even if there *is* difficulty at the dams. In fixing the minimum width of channel span we are to be governed almost entirely by experience on the Ohio. In this, as well as most other important conditions suggested and referred to herein, I have been guided by Ohio River practice and experience, mainly as indicated by the full and valuable letter of Lieutenant-Colonel Merrill, published in the report of the Chief of Engineers for 1882, and the law for Ohio River bridges as amended by act approved February 14, 1883.

The size of Kanawha coal fleets is somewhat smaller than on the Upper Ohio. Colonel Merrill in the report referred to, says: "Above Louisville the fleets are usually composed of from six to sixteen barges * * * with a width of from 75 to 100 feet, and a length of from 400 to 600 feet."

Kanawha tow-boats on "bar stages" generally take out from Charleston pool, from five to fifteen barges.

A fleet of eight barges has a width of about 75 feet and a length, according to the size of the tow-boat and the way the tow is "hitched up," of from 400 to 570 feet. A stern-wheel boat with such fleets in a strong current and, as frequently happens, during considerable wind, must have a good deal of "play room" between the piers of a bridge. Long experience on the Ohio has proved that a clear width of 400 feet is not enough for that stream, and the requirement has recently been increased to 500 feet. Kanawha tow-boatmen and the coal interests generally claim (and with intimate knowledge of experience on the Ohio) that the channel spans of Kanawha bridges cannot be safely made less than 400 feet wide, and will not, I believe, be satisfied with anything under that. This claim appears to me to be based on reasonable grounds. With a properly located bridge and span, a clear opening of 400 feet will, no doubt, be entirely sufficient, but I am of the opinion that the requirement should not be fixed at less. In many locations a span of this width would preclude the necessity of having more than two piers in the water, or between the top of banks, and for this reason be more economical perhaps than a narrower one.

SECTION 2.

Section 2 of bill, as drawn, is faulty and deficient in some important particulars. Under this head the law should at least require—

(1.) That the axis of bridges be located at right angles to the current at high-

towing stages, and that the piers be parallel thereto. (The words "as near as practicable" used in connection with the piers in the second section are thought to be unnecessary and objectionable.)

(2.) That the clear opening of the channel-spans be measured at low water on a line at right angles to the current at high stages.

(3.) That the center of the channel-span be located in the center of the channel, as ordinarily run by coal fleets on high-towing stages.

(4.) That the height of channel-span is to be measured to the *lowest part of span*, and not to "bottom chord." (The difference in the two wordings is material. On the Ohio River bridge at Point Pleasant it amounts to something over four feet, as recently reported by the engineer in charge.)

(5.) That all the spans should be "through" spans. On this point, in addition to the advantages noted by Colonel Merrill in his report, referred to, may be mentioned that of enabling boats to run next to the shore in high water. This is of great importance to ascending boats. Many boats of small power are compelled, in order to make headway at all, to keep near shore in high stages. Experience on other rivers points also to the great advantage of "through" spans in point of safety to both boats and bridges, in case of a steamer becoming disabled or taking fire above.

SECTION 3.

This section is drawn after section 4 of the old (1872) law for Ohio River bridges, and is necessarily defective in highly important respects. The substitute for this section (No. 4 of Ohio law), approved by act of February 14, 1883, embodies the late valuable experience on the Ohio, and should be the guide for the Kanawha. The change in the form of procedure, which directs, that in each case the maps and plans be *first* submitted by the Secretary of War to a board of engineers for examination and report, is particularly desirable. Section 4 of the revised Ohio law is in every respect, except as to names of places, suitable to the Kanawha. I would suggest that the sentence providing for showing on the maps "the location of other bridges in the vicinity" be made to include locks and dams, coal tipples, cribs, and all public and private structures inside of high-water lines.

SECTION 4.

No change is suggested in this section. It may be well, however, to add after the words "Light-House Board," "or the United States engineer officer in charge of the improvement of the river."

SECTION 5.

Though the necessity for the provision of this section is not apparent, particularly with reference to bridges of the character proposed for the Kanawha, it appears reasonable, and I can see no objection to it. So far as I am informed there is no similar provision in the present Ohio River bridge laws.

SECTION 6.

No change is suggested in this section. It is a copy practically of section 6 of the Ohio law.

SECTION 7.

This section and its provisions should be entirely omitted from the law. The fact that it annuls all of the other important safeguards to navigation at certain points in the river is alone sufficient to condemn it. I am now of the opinion that a bridge should not be allowed under any conditions to cross at or very near any dam, permanent or movable; but if this is allowed there is no reason why the requirements governing it should not be as guarded and explicit as for any other part of the river. This section seems to contemplate either a low bridge with a draw or a high bridge with a comparatively narrow span. Otherwise I can see no object in it.

So far as crossing *on* either dam, 2 or 3, is concerned, it is believed a provision to allow this would be of no practical or pecuniary advantage to any interest. The decisive objections to a draw for a river like the Kanawha need not be discussed. The subject is fully commented on in recent reports on Ohio bridges. Without doubt a draw over a lock or its approaches would be more of "a nuisance and danger, both to the railroads that must build and operate it and to steamboats which must pass through it," than at almost any other point.

As to crossing near a lock and dam, even with the regular requirements as to height and width of span, it would seem, but for the proposed provision in section 3, advisable to prohibit altogether a crossing nearer than within about 1,800 feet of any lock and dam. The provisions referred to would probably be sufficient, however, to guard against bad location at any point.

SECTION 8.

No change seems necessary in this. It is a copy of section 7 of the Ohio law.

In regard to confliction with State laws, the following from section 22 of act passed by the legislature, February 22, 1883, to make the State law conform to the laws of Congress as to the Ohio (page 51, acts of West Virginia, 1883), bears directly on the point of your inquiry:

"The provisions of this section as to the building of a railroad bridge across the Ohio River shall extend to and include the Great Kanawha and the Big Sandy Rivers; and no railroad bridge, except as has been or may be provided by law, shall be built over either of said rivers in any way or manner than is or shall be provided by the Congress of the United States as to the Ohio River."

A synopsis of the State laws, on the subject of bridging the Great Kanawha, will be forwarded to you by next mail.

Very respectfully, your obedient servant,

A. M. SCOTT,
Assistant Engineer.

Lieut. Col. WM. P. CRAIGHILL,
Corps of Engineers.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 115.

IN THE SENATE OF THE UNITED STATES.

JUNE 26, 1884.—Ordered to be printed.

Mr. PENDLETON submitted the following

RESOLUTION:

Resolved, That the Secretary of War is directed to collate the various laws under which the Bureau of the Signal Service is organized, and to report a codification thereof, with such amendments as he may suggest, at the commencement of the next session of Congress; that he also report the status in the Army of the chief officer of the Signal Service Bureau, and the propriety of keeping the said Bureau under the general supervision of the War Department.

O

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 116.

IN THE SENATE OF THE UNITED STATES.

JUNE 26, 1884.—Ordered to be printed.

Mr. CAMERON, of Pennsylvania, submitted the following

RESOLUTION:

Resolved, That the Finance Committee be discharged from the further consideration of bill H. R. 4976.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 117.

IN THE SENATE OF THE UNITED STATES.

JUNE 27, 1884.—Ordered to be printed.

Mr. FRYE submitted the following

RESOLUTION:

Resolved, That there be prepared, under the direction of the Committee on Rules, a new edition of the Senate Manual, in accordance with the suggestions made in their report.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 118.

LETTER

FROM

THE SECRETARY OF STATE,

TO

HON. ANGUS CAMERON, CHAIRMAN OF THE COMMITTEE ON CLAIMS,

IN RELATION TO

Bill S. 2332, for the relief of Trautmann Perrin and Marie Louise Perrin.

JUNE 28, 1884.—Presented by Mr. Hoar and ordered to be printed.

DEPARTMENT OF STATE,
Washington, June 26, 1884.

SIR: I have the honor to acknowledge the receipt of your letter of the 23d instant, accompanied by bill S. 2332, present session, for the relief of Trautmann Perrin and Marie Louise Perrin, for losses alleged to have been sustained during the bombardment of Greytown, or San Juan del Norte, Nicaragua, in July, 1854.

In a dispatch to the Department of February 21, 1855, Mr. Joseph W. Fabers, consular agent at Greytown, reports the claims on behalf of American citizens, as well as of those of other nationalities, in consequence of that bombardment. He says of Marie Louise Perrin's claim that she was a native or France, owned a small house, and kept a small clothing store; that her husband took some goods up the river before the bombardment; and that she probably lost from $400 to $500. Her demand is, however, for $33,575.

This Government has not paid the claims of any of its citizens for injuries sustained on that occasion; nor has it admitted the justice of the claims presented on behalf of foreign citizens or subjects by their respective Governments, although much correspondence has taken place regarding them.

The occurrences at Greytown were the result of an insult offered to an American minister returning home on leave of absence through that place by certain persons claiming to be in authority there.

I have the honor to be, sir, your obedient servant,

FRED'K T. FRELINGHUYSEN.

Hon. ANGUS CAMERON,
Chairman Committee on Claims, United States Senate.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 119.

PROTEST

OF

A. MILLER, DELEGATE OF THE STOCKBRIDGE NATION OF INDIANS,

AGAINST

The passage of bill H. R. 2889.

JULY 1, 1884.—Presented by Mr. Cameron, of Wisconsin, ordered to be printed, and referred to the Committee on Indian Affairs.

To the Congress of the United States:

The House Committee on Indian Affairs, misled by misrepresentation of facts, having reported favorably the above numbered bill, the undersigned delegate for said nation presents, to the end that there may a correct understanding of the matters involved, the following statement of facts, and asks that the same be received as a memorial on behalf of and as a protest against said bill by said nation.

In 1821-'22 the Stockbridge-Munsee Nation of New York Indians, desiring to remove to the West, they and others, Oneidas and Brothertons, purchased of the Menomonees the right to occupy in common with them their country, situate in what is now the State of Wisconsin

Subsequently dissensions arose between the Stockbridges and Menomonees. The United States intervened, and in order to effect a peaceable settlement negotiated with the Menomonees the treaty of February 8, 1831, and by Senate amendment thereto (7 Stat., pp. 342 and 406) two townships of land on the east side of Lake Winnebago, Territory of Wisconsin, were secured by the United States for the use of the Stockbridge-Munsee tribe, and they took possession of them.

By September 3, 1839, a party grew up in the nation, the members of which were desirous of removing west of the Mississippi River. To enable them to do this the Stockbridge Nation ceded to the United States by treaty of that day (7 Stat., 580) the east half of said two townships, which sold, and the proceeds delivered to the members of said party, they departed, save a few individuals subsequently readopted into the tribe, and having had the good taste to say so, there is no further concern about them.

Between the departure of these and March 3, 1843, another party arose who desired allotment of land in severalty and United States citizenship, and Congress, at the instance of these, a minority, on said March 3, 1843, passed an act (5 Stat., 645) providing for an allotment in severalty of the west half of said two townships among the members of said Stockbridge tribe, or among such of them as by the laws and customs and regulations of said tribe were entitled to the same.

The allotment was to be made by a board of commissioners composed of five of the principal or head men of said tribe, to be elected by the Indians. This board was to report, with a map; and the seventh section recited that, after the report and map—

> Shall have been filed and transmitted to the President as aforesaid, the said Stockbridge tribe of Indians, and each and every of them, shall then be deemed to be and from that time forth are hereby declared to be citizens of the United States, to all intents and purposes, and shall be entitled to all the rights, privileges, and immunities of such citizens, and shall, in all respects, be subject to the laws of the United States and of the Territory of Wisconsin, in the same manner as other citizens of said Territory; and the jurisdiction of the United States and of said Territory shall be extended over the said township or reservation now held by them in the same manner as over other parts of said Territory; and their rights as a tribe or nation, and their power of making or executing their own laws, usages, or customs, as such tribe shall cease and determine.

An election was held. The candidates of the minority were declared elected. Allotments in severalty were designated, and a report and map transmitted to the President. This done, those desiring United States citizenship, and known as the "Citizens party," took their allotments and exercised the rights, &c., and bore the burdens of citizens of the United States and of the Territory of Wisconsin. The others, who desired neither lands in severalty nor United States citizenship, and were known as the "Indian party," appealed to Congress against the act, and it, satisfied that they were entitled to relief (House Report, No. 447, Twenty-ninth Congress, first session, p. 3), passed its act therefor of August 6, 1846 (9 Stat., 55).

The first section of this act expressly repealed the act of 1843 *in toto*, so far as mere words could do it. It then continued:

> And the said Stockbridge tribe or nation of Indians is restored to their ancient form of government, with all powers, rights, and privileges held and exercised by them under their customs and usages, as fully and completely as though the above-recited act had never passed.

Congress then, supposing it had, as it intended, restored by this first section the Indian status to all as it was prior to the 1843 act, went on to provide by section 2 for an enrollment of those who "shall desire to become and remain citizens of the United States."

It, by the same section, provided for a division of the township (mark the whole township, it being the W. ½ of the two gotten from the Menomonees) into two districts after the expiration of the three months given for making the enrollment; these to be called, respectively, "Indian district," "Citizen district." The land in the "Indian district" was to remain and be held in common by the members of the "Indian party." That in the "Citizen district" to be divided among the members of the "Citizen party," the subagent to assign his ratable proportion of land to each Indian "who becomes a citizen" by and through the enrollment.

The act was, under the existing facts, impractical, and was quickly found to be so when it was attempted to carry it into effect. For a statement of these facts see Report Commissioner Indian Affairs, 1847, p. 742.

But what is to be particularly noted is the position taken by the members of the citizen party in respect to it. They refused to come forward and enroll their names, alleging that they were already invested with United States citizenship and all its privileges under the '43 act, and that Congress had not the power to deprive them of it by this '46 act; that they were unwilling to do anything that would lead to the assignment which had been made of the lands being disturbed. (Re-

port Commissioner, 1847, pp. 741, 772; House Mis. Doc. No. 14, Forty-sixth Congress, third session, p. 2.)

The complicated condition of affairs prevented the act of '46 being carried out. It was seen that something had to be done, and consequently the treaty of November 24, 1848 (9 Stat., Treaties, p. 136) was negotiated.

In consequence of the contention and conflicting opinions in respect to the citizenship question under the '43 act, the members of the citizen party holding that they were United States citizens under that act, and repudiating that of '46, whilst the members of the Indian party, standing upon the '46 act and repudiating that of '43, it was imperatively necessary to have determined at the outset who constituted the Stockbridge tribe or nation to make a treaty.

This was recognized, and consequently the second article of the proposed treaty expressly recited—

That no misunderstanding may exist, now or hereafter, in determining who compose said tribe and are parties hereto, it is agreed that a roll or census shall be taken and appended to this agreement, and in like manner taken annually hereafter, and returned to the Secretary of the War Department of the United States, containing the names of all such as are parties hereto, and TO BE KNOWN AND RECOGNIZED AS THE STOCKBRIDGE TRIBE OF INDIANS, *who, &c., &c.*

By the third article *this* Stockbridge tribe ceded to the United States the Lake Winnebago township; the fifth expressing the consideration, $16,500, to be paid.

Article 4 provided that the township so purchased should be surveyed into lots, in conformity with the plan adopted by the commissioners elected under the '43 act, and then went on to recite:

And such of said lands as were allotted by said commissioners to members of said tribe who have become citizens of the United States (a schedule of which is hereunto annexed) are hereby confirmed to such individuals, respectively, and patents therefor shall be issued by the United States.

Article 7 provided for a removal of the "*said Stockbridge tribe*" to the west of the Mississippi River, and article 6 for the payment of $14,504.85 to the members of *said* tribe for their improvements. There were other money provisions.

The Senate attached an amendment providing, among other things, that the President, within two years after the ratification of the treaty, should procure for the use of said Stockbridge Indians not less than seventy-two sections of land west of the Mississippi River, *the Indians to be consulted in the selection of them.*

In making this treaty the United States most manifestly endeavored to comply with the wishes of both parties, "citizen" and "Indian." It was satisfactory to and accepted by both parties. Certain it is a careful examination of the Commissioner's reports fails to show that at the time of its making, and at any near time afterwards, was any objection made or protest presented against it by either party.

For the "citizens party" there was recognition of their United States citizenship under the '43 act, and confirmation of the allotments designated to them under that act. The treaty manifestly proceeded upon the idea that the members of this party, having renounced their Indian citizenship, and taken their share of the common country and abandoned the nation, they, for this reason, and in consideration of their rights and advantages under their acquired United States citizenship, had surrendered all right and interest to and in the property and affairs of the Stockbridge Nation.

For the "Indian party" there was conservation of their Indian na-

tionality and holding in common of their share of the country sold and of the seventy-two sections to be selected under the amendment, and a recognition that they constituted the Stockbridge Nation.

The failure of the members of the "citizen party" to come forward and be enrolled made most manifest their desire and intent not to be regarded as belonging to the nation.

The treaty was carried out promptly by the United States as to the payments due under it at the time, and there only remained to be accomplished the selection of the seventy-two sections west of the Mississippi, the removal of the tribe thither, and the payment of the ten annual installments of $2,000 each, to be paid under the amendment after the removal.

The members of the tribe manifested a commendable zeal for the removal. (Report, 1849–'50, p. 12; Rep., 1852, p. 5.)

The first trouble that arose was the failure of the Government officials and the Indians to agree upon the selection, and matters dragged along most disadvantageously for the Indians till 1855, when Congress, by act of March 3 of that year (10 Stat., 699), appropriated $1,500 to enable the President to treat with and arrange the difficulties existing among the Stockbridge and Munsee Indians of Lake Winnebago, in the State of Wisconsin, arising out of the acts of Congress of March 3, 1843, and August 6, 1846, and the treaty of November 24, 1848, "*in such manner as may be just to the Indians, and with their assent, and not inconsistent with the legal rights of white persons who may reside on the Stockbridge reserve, of the claim of the United States under the treaty* (1848)."

This was the situation at that time. Those who had become citizens of the United States and taken their share in severalty had squandered it and were paupers. A large number of whites had settled upon lands bought in 1848 from the tribe, whilst those disappointed and dissatisfied with the failure of the Government to locate the seventy-two sections west of the Mississippi in confromity with their selection had become desirous of remaining at and having again the township on Lake Winnebago.

The superintendent at that time was one Francis Huebschmann, an unmitigated scoundrel, as was subsequently proven in suits in Wisconsin brought against him by the Government, in which judgments were rendered against him.

It was determined to work up a new treaty as a means for saddling back upon the tribe the pauper United States citizens, and this conscienceless man, Huebschmann, was selected as the commissioner on the part of the United States for the work.

On May 3, 1855, the Commissioner of Indian Affairs wrote the Secretary of the Interior "*that, for the purpose of bringing about a result so desirable as that of restoring to these people* (Stockbridges) *the township of land at Lake Winnebago,*" if practicable, the Commissioner of the General Land Office should be authorized to be present at the council to be held by Huebschmann with the Indians in order that his experience in the land system of the Government might be made available in the adjustment of some points that in his mind were not free from difficulty.

On June 1, 1855, a treaty was made with the tribe, the Commissioner of the General Land Office being present. It was satisfactory to the Indians, as it restored to them the Lake Winnebago township, and was signed by them almost unanimously. But when Huebschmann transmitted it to the Department he sent with it a notification that, in his opinion, it ought not to be submitted to the Senate. It consequently

was not submitted, and the matter was relegated to Huebschmann for further proceedings.

In January or February, 1856, just after the tribe had held its annual election for headmen or councillors (at that time the tribe was living under a written constitution and written laws of their own enactment) Huebschmann came to them and gave notice at a council called at his request that the Government wanted to make another and different treaty, and, instead of restoring the township on Lake Winnebago or giving lands west of the Mississippi, to give land on Wolf River among the Menomonees.

The council knowing full well that the land there was poor, much more so than that on Lake Winnebago, and incapable of supporting a people who depended upon agriculture for subsistence, refused to entertain this and other propositions submitted by Huebschmann.

He finding that the legally constituted sachem and council would not accede to his propositions, proceeded to harangue the people, and saying that he was authorized and instructed to depose the sachem and councillors in case of their refusing to accept his propositions, declared he did depose them, and thereupon ordered an election to fill their places. An election under his auspices was held. At it persons who never belonged to the Stockbridge tribe, as were those who had formerly become citizens of the United States, taken their share of the common country, and abandoned the tribe, were permitted to vote. Only those were elected who were known to favor Huebschmann's plans and propositions.

The draft of what is known as the treaty of February 5, 1856, between the United States and Stockbridge and Munsee tribes (11 Stat., 663) was presented to the so-elected sachem and council and approved by them. It was then submitted for signatures. Men, women, and boys were induced to sign it. Most of the men who signed it were not members of the tribe and some were beastly drunk at the time of doing so. A number of women signed against the wishes of their husbands. False statements and false promises were made in order to secure signatures, and bribery and forgery were resorted to by Huebschmann.

The annuities due for three or four years previous to this had been withheld. Huebschmann brought this money with him, and used it as a bribe to attract and persuade the doubting. He promised $10 to each one who would come forward to take it and attach his signature. The ignorant had no suspicion this was their own money, but supposed it was a generous gift from their Great Father, and that it was so much in addition to what the so-called treaty promised. Others, poor and destitute, were impelled to sign by the idea that if they did not do so they would not get their annuity money. Huebschmann most explicitly promised $50 per head to those who would remove, to be paid before they left their homes, and before the ratification of the treaty if they so desired. He promised them they should have homes upon the lands lying directly south of Lake Shawano. This was the principal inducement offered, as the Indians knew those lands were of good quality.

There is the clearest demonstration that, notwithstanding the outrage and frauds perpetrated by Huebschmann, not one-half of those who constituted the Stockbridge tribe pursuant to the '48 treaty signed the '56 infamy. To see this, one has but to compare the roll or census taken and appended to the '48 treaty under its second article with the signatures to the '56 treaty, to see that of the 56 persons *named*, who in 1848 represented 177 souls, only 25 of them representing 76 souls in '48 signed the '56 treaty.

Immediately after the signing of the paper Huebschmann proceeded with a delegation to explore the country that the signers supposed had been promised them. Arrived there he told them they could not look at that land with the expectation of getting it, but that they must make such explorations as he directed. When told by the delegates what was their understanding of the treaty, he replied he was sorry they did not understand it when they signed it, that they had to go where he told them. Then, for the first time, the Indians saw that they had been deceived and a gross fraud practiced upon them. Many became disheartened and regretted they had ever seen Huebschmann and his treaty. The delegation readily discovered that the country it was intended they should take was vastly inferior as a farming country to that on Lake Winnebago, and could by no means come up to the treaty promise of being one-half arable.

The treaty so obtained was rushed to Washington City, and ratified by the Senate April 18, 1856, before those whose rights had been so flagrantly violated and were opposed to the treaty were able to prepare and present their statement of the facts and objections to the treaty.

The land selected by Heubschmann—two townships—was obtained from the Menomonees by treaty of February 11, 1856 (11 Stat., 679).

To appreciate how great and utterly indefensible was the outrage perpetrated upon the tribe by Huebschmann in supplanting the constitutional authorities of the tribe through the form of an election with voters thereat who were citizens of the United States and not possessed of the slightest right to a voice in the affairs of the tribe, one has but to read the admirable report of that superb lawyer, then Senator, Matt. H. Carpenter, on the status of Indians under the fourteenth Constitutional amendment. (S. Report 268, Forty-first Congress, third session.)

Great as was that wrong it was aggravated by the cruelty that was manifested in the miserable country selected for the Indians' new home.

As to this, there is the most ample testimony. The soil of the two townships is mostly yellow sand with little clay, bearing in the main groves of hemlock and pine, principally the latter. There are swamps with cedar and tamarack interspersed with ridges of hard-timber land. The north half of the east and the entire west township were valuable only for the timber.

Agent Bonsteel said in 1858 (Report Commissioner, 1858, pp. 29, 30), speaking of the complaints of the Indians, one of which was—

> That the land allotted to them was unsuitable for farming purposes, and by no means such as they had a right to expect, both from the terms of the treaty and the promises of Superintendent Huebschmann. Without any disposition to censure the action of that officer, I consider it my duty to say that some portion of their complaints is founded in truth.
>
> The country given to them is cold, by no means well fitted for farming purposes, and altogether inferior to the land conveyed by the Indians to the United States.

He said in 1859 (Report 1859, p. 40):

> The land, in point of fertility, not being at all what it was represented to be.

Agent Davis said in 1862 (Report, p. 328):

> The country occupied by the Stockbridge Indians would very justly be considered *a hard country for white people to live in*. It is mostly heavy timbered with hemlock, beech, birch, poplar, pine, tamarack, cedar, sugar maple, bass, &c. Pine is the principal timber of any value.
>
> There is no disguising the fact that the condition, location, and future prospects of this tribe are unfortunate.

The agent said in 1866 (Report, p. 287):

> If their location had been selected in a fertile region instead of the cold and barren sand hills of their present home, their advancement in agriculture and the arts of

ivilized life would have been more satisfactory and far more beneficial to them. * * But the forbidding character of their country, not enabling them to realize rom it a meager subsistence without occasional supplies from the Government.

In 1870 the agent said (Report, p. 312) that the superintendent who ocated the tribe "selected a poor sand barren and obliged them to live on it."

Notwithstanding their disappointment as to the character of the country promised, those who had become citizens of the United States went at once to the new reservation bought from the Menomonees, they having in fact no other home to go to. They were accompanied thither by the major portion of those of the tribe (we speak of the tribe constituted under and recognized by the '48 treaty) who had signed the '56 treaty.

The remainder and major portion of the tribe, refusing to participate n or assent to the '56 treaty, remained at the old or Lake Winnebago reservation. They presented their appeals to Department and to Congress, and endeavored among other things to effect a purchase of a portion of the country of the Oneidas. (Report 1859, pp. 39, 40.)

The attempted purchase came to nought. Their appeals failed to bring them relief. There was constant jarring, with collisions with the white settlers as to their respective rights to the possession and occupancy of the lands, and the Government officers withheld their improvement and removal funds.

Forced by these and other causes to succumb, they, in the fall of 1859, unwillingly gave up their old homes and went to the new reservation.

Speaking of this removal, the agent said (Report 1859, p. 40):

It is apprehended that the removal of these Indians to the new reserve will not by any means cure the growing discontent as to the situation and location of this tribe; their main object seems to be to effect a removal to some more genial climate and fertile land; their desire and wish has been to effect the purchase of the Oneida lands.

That the agent spoke not without reason, let after reports testify.

The agent in 1862 said (Report 1862, p. 329):

This tribe are very anxious to treat with the Government for the purpose of locating on better farming lands, but, in accordance with your instructions, I have informed them that, in the present disturbed state of the country, the Government could hardly be expected to treat with them.

In 1866 (Report 1866, p. 287) he said:

There are in the *tribe* men of intelligence, good farmers, and skillful mechanics. But the forbidding character of their country not enabling them to realize from it a meager subsistence without occasional supplies from the Government has bred discontent among them, and they therefore earnestly desire a remodeling of their treaty stipulations, believing that any change must be an improvement upon their present condition * * * and they seem to regard themselves as mere sojourners, looking with anxiety to the future that awaits them.

In 1870 (Report 1870, p. 312) he said:

The *tribe* is disgusted with their home and discouraged with farming.

As shown above, the Stockbridge tribe—the anti 1856 treaty party—did not go to the new reservation gotten from the Menomonees till the fall of 1859, and it is gross error to say "the treaty (of 1856) was satisfactory to the tribe, and all the members accepted it as a settlement of former difficulties," &c. The official reports quoted from disprove it.

Immediately after these went in 1859 to the new reservation, the improvement and removal funds that had been withheld from them all—those members of the tribe and those not members but citizens of the United States (Report 1859, p. 10)—were paid over.

The reports of the commissioner and agent for 1860, being so very meager, assist us not at all in this inquiry, but when we come to that of 1861, p. 193, we find the agent reporting that he found not one Munsee on the reservation, and about one-half the Stockbridges gone.

In 1862 (Report 1862, p. 329) he reported:

In enumerating the members of this tribe I found 135 persons on the reservation and 214 off, principally scattered in the northeast counties in the State. The number of families on the reservation is thirty-six. Their dwellings are constructed of logs, and are substantially made. There is but one frame house, 25 by 40 feet, which is used for a church and also for a school-house. The barns, ten in number, are also constructed of logs. I found twenty deserted houses, the proprietors of which could hardly be induced to return and occupy them. *Indeed, nothing brings them back, except they hear that subsistence or funds are to be distributed.*

In his report of 1866, p. 287, the agent says:

The treaty made in that year (1856) with the Stockbridge and Munsee tribes, and the census accompanying it, present an aggregate population of both parties numbering 409 souls. A removal and improvement fund was provided them, *upon receipt of which the greater portion left the tribe, expended their money elsewhere, and their number now is reduced to about* 152.

What is to be particularly noted in this connection is that, with five or six exceptions, it was those who had become citizens of the United States under the '43 act that so left the new reservation upon receipt of their portion of the removal and improvement fund.

It is these whose only concern about the tribe is, and has been distribution of funds or subsistence and whom only that brings to the reservation.

Those who remained upon this new reservation, with the exceptions noted, were of the "Indian party"—the "Stockbridge tribe," under the 48 treaty; those who went there unwillingly in 1859—those who, year after year, voiced their wrongs to Congress and earnestly besought redress.

The '56 treaty substantially provided for a new formation of the Stockbridge tribe by making its component members to be, not alone those individuals who constituted it under the '48 treaty, but these, together with those who had become citizens of the United States under the act of '43 and all others of that blood, and Munsees, wherever living, whether in Wisconsin, New York, or west of the Mississippi River.

In other words, it contemplated bringing back as members of the tribe all who had taken their share of the common country owned at the time of the passage of the act of 1843 and abandoned the tribe, leaving it to its fate in order to have and receive a further share from what was left to, and preserved by, the others, and thereby have them receive an undue share of what was the common property.

The treaty (article 5) provided for a roll or census of—

"The persons to be included in the apportionment of the land and money to be divided and expended under the provisions of this agreement," they to "be such only as are actual members of the said Stockbridge and Munsee tribes, their heirs, and legal representatives."

A roll or census was taken and appended to the treaty. It enumerated 58 Munsees in New York, and 351 Stockbridges in Wisconsin; total, 409 souls.

The treaty of '48 gave the "Indian party," the "Stockbridge tribe" of 177 souls, the two townships to be located for them under the amendment to that treaty. It also provided, amendment and article 9, for a payment of $20,000 to them by ten annual installments, after their removal from the Lake Winnebago Reservation, and an investment of

$16,500 "for the purpose of making provision for the rising generation of said tribe"; total, $36,500.

The '56 treaty, article 1, called for a cession and relinquishment of these $36,500 to the United States, who gave in lieu thereof—by article 2—one improvement and removal fund of $61,650 for 409 souls, viz, the 58 Munsees in New York and the 351 Stockbridges in Wisconsin; and, by the amendment, another fund of $12,000 for said 351 Stockbridges and a fund of $6,000 for the 58 Munsees.

The 177 souls of the tribe under the '48 treaty and their descendants could not and did not receive as much money under the '56 treaty as the '48 treaty secured to them. The figures given will aid in demonstrating this.

By the '56 treaty, articles 3 and 5, the two townships instead of belonging to the representatives of said 177 souls was to belong to 409 souls, the 58 Munsees and 351 Stockbridges, *supra*. It is easy to see how much less land the '56 treaty gave to the representatives of the 177 souls than the '48 treaty gave those 177.

Now, taking into consideration the outrages perpetrated upon the tribe by the deposition of their constitutional officers—by the imposition upon them of pauper citizens of the United States and by the carrying of an election against them by the votes of these forcibly imposed paupers—the worthlessness of the two townships selected under the '56 treaty, article 2, in comparison with the lands on Lake Winnebago sold to the United States under the '48 treaty—the enforcement, or rather contemplated enforcement, of a division of these two townships among 409 souls instead of among the representatives of the 177 souls, and the further fact that the '56 treaty did not give to said 177 representatives as much money as the '48 treaty gave the 177; now, as we say, taking these things into consideration, it is impossible to see how the 1856 treaty was in any way a benefit to the representatives of the 177 souls, the "Strockbridge tribe," as recognized by the '48 treaty. It is impossible not to see that it was a monstrous wrong, a most positive injury in every way to them.

Under such circumstances they had the right to appeal to Congress against it. It is not to be wondered at or they to be condemned for having persistently voiced their great wrongs to Congress.

Article 3 of the '56 treaty provided for an allotment among the 409 persons of the two townships to be selected under article 2, it to be made "under the direction of the superintendent of Indian affairs for the northern superintendency."

The House committee, led into error by misrepresentation, has incorrectly reported (Report 1054, Forty-eighth Congress, first session) that the townships were so allotted to the Indians immediately after their removal to their new home, and such allotments have ever since been occupied by the families to whom they were so assigned.

Such was not the case. The abolition of the office of superintendent, northern superintendency, prevented the allotment being made, and none has ever been made pursuant to the treaty. We have already seen how individuals left the reservation.

In 1871 Congress, giving ear to the appeals of those so wronged by the '56 treaty, passed its act of February 6, of that year, Chap. XXXVIII (16 Stat., 404), for the relief of the Stockbridge and Munsee tribe of Indians, &c.

This act—sections 1 and 2—provided for an examination and appraisal of the whole, and a sale of three-fourths of the two townships bought from the Menomonees under the '56 treaty, and a reservation of

the other one-fourth (eighteen sections) to and for and "subject to allotment to members of the Indian party of said tribe"; that is to say, to and for such of those and the heirs of those 177 souls who constituted and were recognized as the Stockbridge tribe under the treaty of 1848, and those adopted and recognized by them as members of said tribe *as were in said year* (1871) desirous of continuing their Indian nationality and the holding of their land in common.

N. B.—At this time a large number of those who had constituted the "Indian party," the "Stockbridge tribe," under and after the treaty of '48, had become desirous of taking their interests in severalty from the tribe and acquiring United States citizenship. These were designated and known as the "New Citizens party" in contradistinction to the old "Citizens party," whose members had acquired United States citizenship and taken their share of the common country under the act of '43.

It was to gratify the desires of the members of this "New Citizens party" that the sale was provided by said act of 1871.

It is not necessary for this consideration that we notice in detail each of the nine sections of this act of 1871.

It is sufficient to say that Congress, not attempting by this act to take back from the members of the old "Citizens party," or have them in any wise repay any part of the money received by them under the 1856 treaty, took into consideration these facts, namely: that the members of the old "Citizens party" had taken their share of the common country owned by the tribe in 1843, and disposed of it for their exclusive used and benefit; that they had acquired United States citizenship under the act of '43, and had abandoned the tribe, leaving it to its fate; that the tribe, being a nation under treaty relations with the United States, had the right to hold, and had held, these as having no longer any interest in the property or affairs of the tribe; that these gave not the least consideration to the tribe for a right to share with its members the lands of the two townships bought from the Menomonees; that the United States had not the least right to impose upon the tribe by the '56 treaty, without its free consent and upon just consideration, its pauper citizens of Indian birth—not one whit more right to impose these as citizens than to impose as such citizens a like number of its pauper white citizens; that those it then thereby attempted to enforce upon the tribe as citizens, upon getting their share of the money paid under the '56 treaty, at once left the new reservation, and a second time abandoned the tribe to its fate, and intended, so far as these United States citizens were concerned, a repeal of the '56 treaty in so far as it enabled them to share in the proceeds of the sale of the three-fourths of the two townships directed by the first and second sections of this act, or in the eighteen sections of land reserved from said sale by the proviso to the second section. This intent was made manifest by the exclusion of them from the rolls provided for by section 6.

The act of 1871 was carried into effect. A sale of the three-fourths of the two townships was made. Two rolls were prepared pursuant to section 6, showing 138 souls to the "New Citizens party" and 112 to the "Indian party," those desiring to retain their tribal relations. The proceeds of said sale were divided, and $75,804.46 being transferred to the credit of the Indian party on the books of the United States Treasurer (sec. 5), the balance, $94,179.57, due this "New Citizens party" (138 in number), was paid to them pro rata.

The reserved one-fourth (eighteen sections) was practically prepared for the sole occupation of the members of the Indian party and such members of the new and old citizens parties as were in occupation of

portions of these eighteen sections were, upon refusal to comply with notice to leave, declared trespassers by order of January 25, 1875, and the agent directed to remove them. (See H. Mis. Doc. 14, Forty-sixth Congress, third session, pp. 9–12.)

The members of the *old* "Citizens party" some families of whom are on the reserved eighteen sections, the order for their removal upon one pretext or another not having been enforced, are clamorous for participation in the $75,804.46 in the Treasury to the credit of the 112 members of the "Indian party," and it is in the interest of these calling themselves the "old Citizen party of 1843," as opposed to the "Indian party," that the passage of said House bill 2889 is sought, to operate as a repeal of the act of 1871 *only as to the* 112 *members of the "Indian party."*

These offer the following considerations in support of their opposition to said bill 2889:

It was competent for Congress to tender by the act of 1843 United States citizenship and allotment of land in severalty to members of the Stockbridge tribe of Indians.

All such Indians as have ceased their tribal relations and been declared citizens of the United States by treaties or acts of Congress are citizens of the United States. (Wilson *v.* Waul, 6 Wall., 83.)

Our attention has been called to several treaties by which Indians were made citizens, and to the act passed in relation to Texas. All this was done under the war and treaty making powers of the Constitution and those which authorized the National Government to regulate the territory and other property of the United States and to admit new States into the Union. (United States *v.* Rhodes, 16 Am. L. R., 233; Am. Ins. Co. *v.* Canter, 1 Pet., 511; Cross *v.* Harrison, 16 How., 164.)

Naturalization is the removal of the disabilities of alienage. The making of one not a citizen to be a citizen. (The State *v.* Manuel, 2 Dev. & Beatt., 25; The State *v.* Newcomb, 5 Iredell, 253.)

Indians not being of domestic birth are under the disability of alienage. (Scott *v.* Sandford, 19 How., 417.)

The power to naturalize is vested exclusively in Congress. (United States *v.* Rhodes.)

It is quite certain those individuals who accepted the tender made by the act of '43 and took land in severalty and terminated their tribal relations and acted and were recognized by all parties as United States citizens, did become such *pleno vigore.*

Congress could not by subsequent act make them not to be citizens. Neither could this be done by treaty with them.

We have no law to decitizenize a citizen who has become such either by the natural process or the legal process of adoption. (Atty. Gen. Bates on Citizenship, 10 Op., 382.)

Can Congress by act make an Indian nation, *i. e.*, all the members thereof, citizens of the United States, they not desiring or accepting the same? Can it do so, for example, to the Cherokee Nation? We opine not. If it cannot be done to all, they not desiring it, does it not necessarily follow that it can be done only to those who desire and accept it?

Those Stockbridges who became United States citizens under the act of 1843 are such citizens to this day.

The Stockbridge tribe, a nation, and so recognized by the United States, had the plenary right in the exercise of the power to regulate its domestic affairs, to treat those individuals who had accepted United States citizenship, taken their share of the common country in severalty,

and dissevered their tribal relations, as having thereafter no interest in the property and affairs of the tribe.

Senator Carpenter's report, *supra*. Such surely would be the law of the United States to one or more of its citizens.

The treaty of '56 was an illegal interference by the United States in the interest of some of its pauper citizens with the possessions of the Stockbridge tribe.

The protection of the Indians in their possessions is a political question over which Congress has jurisdiction. (Cherokee Nation *v.* Georgia, 5 Pet., 20.)

Congress can by act repeal a treaty. (Cherokee Tobacco Case, 11 Wall., 619.) Consequently Congress, in 1871, could, if then satisfied that a wrong was done the Stockbridge tribe of Indians in respect to their possessions by the treaty of '56, in the interest of some pauper citizens of the United States, rectify that wrong in the exercise of its Constitutional power to protect the Indians in their possessions.

We have shown conclusively that great wrong was done by the treaty of '56. Congress realized this, and sought to remedy it by its act of of '71, and that act should be allowed to stand, and Congress will do well to give heed to the recommendation in respect to its pauper citizens herein referred to, submitted by the Commissioner of Indian Affairs (H. of R. Mis. Doc. 14, 46th Cong., 3d sess., p. 16), and be generous to them at its own expense.

All which is respectfully submitted.

A. MILLER,
Delegate Stockbridge Nation.

WASHINGTON, D. C., *June* 30, 1884.

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48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 120.

MEMORIAL

OF

JOSEPH C. G. KENNEDY,

ASKING

Congress to repeal the twenty-second section of the law for "taking the tenth and subsequent censuses"; which section provides for intermediate State enumerations, and for other purposes.

JULY 2, 1884.—Presented by Mr. Voorhees, referred to the Committee on the Revision of the Laws, and ordered to be printed.

WASHINGTON, D. C., *June* 20, 1884.

To the Senate and House of Representatives:

This record of your petitioner respectfully represents that—

The bill providing for the Tenth Census, as introduced in the two houses of Congress in 1879, was described by the undersigned (in a memorial to Congress in March, 1879, Congressional Record, March 25) as one "establishing not only a pernicious legislative precedent, but involving an extraordinary and useless waste of money, and inflicting reproach upon American appreciation of statistical science." He stigmatized the declarations of General Walker and others that $3,000,000 would be "ample for all the cost, including that of printing," as the rash expressions of a zeal without experience, which, if depended on, "must result in depriving the laborer of his earnings in additional legislation or end in disgraceful failure in the prosecution of the work and endless claims upon Congress." (Senate Mis. Doc. No. 451, first session Forty-sixth Congress).

So confident appeared the managers of this measure, that Mr. Morrill, chairman of the committee, to command the credence of Congress, inserted a proviso (twentieth section) that "the maximum cost of the census herein provided for" should be "three millions," and to quiet the doubts of disbelieving Senators, inserted in the bill the inhibitory clause: "It shall not be lawful for the Secretary of the Interior or Superintendent of Census to incur any expense or obligation whatever in excess of that sum," and made verbal declaration that the cost would prove $300,000 less than under the law of 1850. Mr. Stanley Matthews, also of the committee (Record 42, p. 3,) stated that the cost "will be from $300,000 to $500,000 less than it would be if under the act of 1850. That these gentlemen were sincere I have no more doubt than in my belief that Mr. Cox, who managed the bill in the House, was so in declaring that this census would cost but one-third that of the British census, which it has already exceeded some four to five million dollars.

Such was the faith of Mr. Morrill in the astonishing capacity of the individual represented as responsible, that he provided in the bill for

an increase of over 66 per centum in the salary of the Superintendent of Census, raising it to $5,000, the highest pay of a head of bureau.

Now let us see the nature of the declarations made when the work had, in a few months, so far progressed as to consume every dollar of appropriation. In the Report of the Secretary of the Interior (Kirkwood) for the fiscal year ending June 30, 1881, p. 23, the "near completion" of the census is predicted; in fact, he represents that "with the exception" of a few statistics "the field work of the Tenth Census may be considered practically finished." He admits the expenditure at that early period in the history of the work, of $750,000 in excess of the $3,000,000 to which the expenditure by law was limited on positive assurances of its sufficiency. He recklessly and without the remotest possibility of knowledge at the time, states (p. 25) that "the defects and inaccuracies of the Ninth Census (taken by Walker) have been avoided."

These defects, which nothing but the publication could develop, were made pretext by Mr. Walker for a law of his own construction, which should be of rapid and economical execution. In his official report to Mr. Kirkwood, January 5, 1881, it is represented that another appropriation of $500,000 will be requisite "to secure a full and satisfactory completion of the Tenth Census, including the compilation and *publication of its results.*" (See Report No. 750, third session Forty-sixth Congress.) At so advanced a condition of the work, as represented by Mr. Kirkwood, there could not have existed any pretense for such false representations of the cost and demands for its completion in either time or money. Nevertheless, examination of the official record will prove that after the appropriation of the first $3,335,000, and subsequent to the representations made by Kirkwood and Walker of the near completion of the work and the adequacy of half a million to pay, not only the obligations incurred in violation of law, but everything involved, "including the printing of the results"—that prior to the publication of a single volume, appropriations were made of $2,382,060.91 in addition to the $3,335,000 previously expended, making $5,717,060.91, since which other large sums have been appropriated, and much more will be demanded.

It is not difficult in surveying this exhibit to appreciate the effect of the frequent "furlough" of from one to five hundred male and female clerks until "additional appropriations should be made." The law was first violated by transcending the amount originally appropriated, ignoring its positive inhibition, and violating the general law by an issue of pay-certificates sacrificed to brokers.

In the light of declarations made in February, 1879, in the Senate and House, assertions hazarded in the report of Secretary Kirkwood of November 1, 1881, the various statements of Walker of the appropriations heretofore made and the great force yet employed on the work, the vast amount of accounts suspended in the Treasury, and the undeterminable sums to be hereafter demanded, "all reason fails and judgment is struck dumb."

Mr. Kirkwood, at page 25, in representing that "the expense could not be foretold," most unceremoniously contradicts the statements of Senators as to their declared thorough examination and assured proofs as to the cost. Mr. Kirkwood, in his Report, p. 26 (that of November 1, 1881), says: "It is confidently expected that by the time Congress meets in December the compilation of the Tenth Census will be substantially completed. * * * The resignation of Superintendent Walker was accepted at a time when the work of the census was prac-

tically ended," p. 27 (nearly, if not quite two and a half millions have, since that date, been expended on the work).

Now, in view of all these facts, it is certainly incumbent on Congress to perform two duties. First, require an itemized exhibit of all the expenditures as far as incurred. Second, repeal the provision in the law authorizing intermediate State censuses on and after the plan of the Tenth Census, one-half of the cost whereof is to be borne by the United States Treasury.

No other argument will be required to enforce on the minds of all who desire the truth the propriety of the suggested exhibit, than an examination of the report (Senate Ex. Doc. No. 28, third session Forty-sixth Congress) made by Superintendent Walker in response to a like demand by the Senate of January 20, 1881.

There exists much greater reason now for such a report, which truthfully made, will develop the animus of the superintendent in resigning when he did, and confirm in every particular the truth of the predictions of experienced but disregarded authority as to the fallacy of the grounds upon which the passage of the bill was demanded. Investigation to be prosecuted successfully must be conducted while the trails are traceable. Regarding what appears a second duty, it must at this period, and with the record, be evident to every thoughtful man that the provision for intermediate censuses was incorporated in entire misapprehension of the laborious, slow, complicated, cumbrous nature of a work officially represented to be nearly finished before being one third done—much of it a compilation of the deductions of extravagantly-paid specialists and theorists scattered over the country and acting in their own interests independently of the official restraints and responsibilities usually associated with official services—a work too bulky for practical purposes and too costly for general circulation. With a knowledge of the cost of such a census as thus far developed, it is not to be supposed that any State will join the partnership for that proffered temptingly by the General Government when more useful State enumerations can be had at much less than one half of the outlay required.

It is believed that no one State has yet expressed the remotest intention of making avail of the law, and the several legislatures before determining will, properly advised, consider, as should Congress, the augmented cost of such a work under thirty-nine separate State administrators, and the vast force of accounting officers, State and national, requisite to adjust accounts, and that the work by States must be completed, copied, "and return made thereof" within ninety days—less than one-fifth the time occupied by the Census Office in obtaining its returns, if they have all been received at this late date. So far from it being economy in any of the States to avail of this law the results to such as shall make the experiment will be costly, annoying, and full of disappointment. If wise, Congress will immediately repeal a provision which, at the most, would be but partially availed of, and protect the national Government from charges no more obligatory than the cost of State elections. The several States which have made enumerations at their own charge will find it economical and prudent not to depart from their practice in the expectation of profiting by the United States Treasury.

It is natural, however, that State legislatures should be misled by the arguments, as was Congress, and it is essential for Congress to immediately repeal this section, so prolific of trouble and cost, lest some State be beguiled into making avail of it with augmented evils pro-

portioned to their number with no corresponding advantages, as, at the best, it would be but a partial census of the States, the Territories not being embraced in the provision.

Having, when the census bill was first passed, brought to the attention of Congress many glaring defects which were remedied by amendments, and having candidly in two separate memorials represented what would be the inevitable, unhappy results of the law unless further amended, precisely as they have occurred and will succeed, I have now no hesitation in asking of Congress the consideration of means to provide against the other avoidable evil consequences herein referred to, which may be averted by timely legislation.

JOS. C. G. KENNEDY.

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48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 121.

IN THE SENATE OF THE UNITED STATES.

JULY 2, 1884.—Ordered to be printed.

Mr. SHERMAN submitted the following

RESOLUTION:

Resolved, That the Senate will meet at the usual hour on Friday, the 4th day of July instant, and after the reading of the Journal, and before other business is done, the Secretary of the Senate shall read the Declaration of American Independence and Washington's Farewell Address.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 122.

IN THE SENATE OF THE UNITED STATES.

JULY 2, 1884.—Ordered to be printed.

Mr. HAWLEY submitted the following

RESOLUTION:

Resolved, That a select committee of five Senators be appointed by the Chair to inquire as to the capacity of steel-producing works in the United States to make steel of suitable quality and sufficient in quantity to furnish metal for guns of high power, and metal plates and other material for the construction of vessels of war, and for the armor or sheathing for such vessels.

2. That said committee shall also inquire as to the character and sufficiency of machinery and machine-tools in the navy-yards, and also in private foundries and machine-shops in the United States, for the construction of engines suitable for vessels of war, and for manufacturing guns for the proper armament of such vessels, and of the sea-coast defenses, and for the purpose of constructing iron and steel ships of war.

3. Said committee shall also inquire into the best locations in the United States for manufacturing guns, engines, and armor for vessels, and for building iron and steel ships of war, and the best method of manufacturing and building the same, whether by the Government or by contract with private persons.

4. Said committee shall have power to sit in the vacation of the Senate at any place in the United States, to send for persons and papers, and to appoint a clerk and messenger, and may report by bill or otherwise.

5. The expenses of said committee, and of witnesses summoned before it, shall be paid out of the contingent fund of the Senate, to be certified by the chairman of the committee, and audited and allowed by the Committee to Audit and Control the Contingent Expenses of the Senate.

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18TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 123.

IN THE SENATE OF THE UNITED STATES.

JULY 2, 1884.—Ordered to be printed.

Mr. HAWLEY submitted the following

RESOLUTION:

Resolved by the Senate (the House of Representatives concurring),

1. That the Joint Committee on Public Printing is hereby instructed to examine into the numbers printed of the various documents, reports, bills, and other papers published by order of Congress, or of either House thereof, and of the Congressional Record, and to report a bill in December next, making such reductions in the numbers and cost of printing, and such changes and reductions in the distribution of said publications as they may deem expedient, with a report giving their reasons therefor, and that the said committee is also instructed to investigate the printing and binding for the Executive Departments, executed at the Government Printing Office and at the branch printing offices and binderies in the various Departments, and report a bill, in December next, making such reductions in expense and imposing such checks as they may deem expedient, with a report giving their reasons therefor; and said committee is further instructed to make any other investigations calculated in their opinion to reduce the cost of the public printing, and report the result thereof; and the said committee is hereby authorized to summon and to examine experts and witnesses, and to call upon the heads of Executive Departments and the Public Printer for such information regarding the preceding matters as they may desire; and any expenses necessarily incurred in making the investigations aforesaid shall be defrayed equally from the contingent funds of the two Houses of Congress.

2. Said joint committee is hereby authorized to sit during the recess for the purposes of the first section hereof, and in the discharge of its usual duties.

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48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 124.

IN THE SENATE OF THE UNITED STATES.

JULY 3, 1884.—Ordered to be printed.

Mr. MILLER, of California, submitted the following

RESOLUTION:

Resolved, That the provisions of the resolution of the Senate adopted June 11, 1884, instructing the Committee on Indian Affairs to inquire into the condition of the several tribes and bands of Indians in the Indian Territory, &c., be extended to and embrace therein the Indians upon the several reservations in California, and that the said inquiry be directed particularly to the Round Valley Indian Reservation in said State; and that full investigation be made into the present and past management of said reservation, and of all abuses of the rights and interests of the Indians thereon.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 125.

IN THE SENATE OF THE UNITED STATES.

JULY 4, 1884.—Ordered to be printed.

Mr. DOLPH submitted the following

RESOLUTION:

Resolved, That the provisions of the resolution of the Senate adopted July 4, 1884, authorizing the Committee on Fisheries to sit during the recess of Congress, &c., be extended to and embrace therein the Pacific coast; and said committee be, and it is hereby, authorized to investigate concerning Congressional legislation required for the regulation of fisheries in the bays and arms of the sea and lakes and rivers upon said coast.

48TH CONGRESS, 1st Session. | SENATE. | MIS. DOC. No. 126.

IN THE SENATE OF THE UNITED STATES.

JULY 4, 1884.—Ordered to be printed.

Mr. MORGAN submitted the following

RESOLUTION:

Resolved, That the Committee on Public Lands is instructed to investigate the entire subject of the transfer of the land grant from the railroad company known as the Backbone Railroad Company to the New Orleans Pacific Railroad Company, and shall have power to send for persons and papers, and leave to sit in the recess of the Senate, at the most convenient place for such investigation.

2. That said committee have leave to act by a subcommittee, and to appoint a stenographer, clerk, and messenger.

3. The expenses of such committee shall be paid out of the contingent fund of the Senate, to be audited and allowed by the Committee to Audit the Contingent Expenses of the Senate.

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48TH CONGRESS, 1st Session. } SENATE. { MIS. DOC. No. 127.

IN THE SENATE OF THE UNITED STATES.

JULY 5, 1884.—Ordered to be printed.

Mr. MANDERSON submitted the following

RESOLUTION:

Resolved, That the Committee on Transportation Routes to the Seaboard be and they are hereby authorized to sit at any place within the United States during the recess of Congress, by sub-committee or otherwise; to take testimony for the purpose of preparing statistical data relative to freights, commodities, and prices for the period from 1873 to the present time—the committee to report by bill or otherwise; and that the necessary expense thereof, including the services of a clerk, be paid out of the expenses for special and select committees, &c., of the contingent fund of the Senate.